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Recent Collisions: their Causes, and the Proposed Mode of Prevention.

OPINIONS of an expert, especially if he be a man of intelligence outside his specialty, are always of value. In no case can this remark be more applicable than in that of railway collisions. The men who are best fitted, by the daily direction of their energies, to understand the conditions of safety on a railway, are unquestionably the engine-drivers; and, among them, those of their body who, from their superior skill and care, are selected as the drivers of express or fast trains. It is therefore well worth while to give very careful attention to the opinions which a man of this class has been allowed to express in the columns of a daily contemporary.

Few persons who have not themselves driven engines, or at all events travelled on the footboard of the locomotive, are aware of the great stress that is thrown on the faculties of the driver. He must be, to a certain extent, a mechanic; and often is a skilled mechanic, able, from education and practice, to repair or to construct any part of the wonderful artificial organism which is entrusted to his care. He must be a man of a certain amount of muscular strength, and of a robust constitution that will enable him not only to brave all inclemencies of the weather, but to keep his powers of observation, and his instant readiness to act, unaffected by heat or by cold, by fatigue or by hunger; by darkness, storm, or tempest. It is one thing to bear such things gallantly on foot, on the outside of a coach, or even on horseback; and another to do so when not only one's own life, but the lives of many other human beings, may directly depend on readiness of eye and hand. For though, on a well-ordered railway, by broad daylight, with signals visible from a distance, the post of an engine-driver may appear to be an easy one, such is far from being really the case. At all times and under all circumstances the demand made on the energy of his manhood is great. On occasions of hardship and of danger it is probably higher than under any other ordinary circumstances. A pilot or a helmsman in a storm, or a superior officer in an engagement, may be subjected to a severer strain than an engine-driver in a fog, a snow-storm, or the prospect of an imminent collision. It is not easy to pick out more pertinent comparisons.

When a man, whose daily life is spent in an occupation of this anxious nature, finds language to tell us his experience, it is not a thing to be neglected. It is not, of course, to be assumed that "an express-driver" is infallible. But it is certain that he ought to be heard with respectful attention; and that his advice, if it recommends itself to the reason, should have the added weight of the most apt experience. "I will give you a case I see every day," says the driver. We listen to his evidence, and we come to the conclusion that precautions which, if faithfully adhered to, would make collisions impossible, are only nominally adopted. The block system, if thoroughly carried out, ensures safety. If only half carried out, it is no better than any other system, or no system, that has been followed for the last quarter of a century.

We will not cite the actual words of the express driver. They are perfectly clear and conclusive to the engineer; they may be a little too technical for the ordinary reader. The gist of them is this. A railway is supposed, under the block system, to be divided into a given number of sections by semaphores, or plainly visible signal stations. The length of each section ought to be determined, as to its minimum, by the distance within which the heaviest and fastest train can be brought to a stand still from its highest speed, under the most unfavourable circumstances. No engine-driver should be allowed to pass any one of these stations unless it display the signal "Line clear." This signal should never be given while a train is on the section immediately in advance. Thus, if we take stations *a*, *b*, *c*, and so on, when a train passes *a* the semaphore at *a* should bar the line until the signalman at *a* is aware that the train has passed *b*; *b* is closed till the train has passed *c*, and so on. But this is not quite enough. If any obstruction is known to occur, or to be probable immediately beyond *b*, the engine ought not to be allowed to pass *a* at full speed. Thus when a coal-train has to shunt into a siding between *b* and *c*, a proceeding that occupies some time, and during the execution of which the section *b*–*c* is properly closed, if a following train is allowed to pass *a* at say sixty miles an hour, although the section *a*–*b* is clear, there is imminent danger of a collision. There is the possibility of stopping in time, but there is also the opposite possibility. It is this opposite possibility which has to be avoided. The block system supplies the means of so doing. But then it must be arranged with that view. It is entirely unsatisfactory to allow the train to run at full speed over a section known to be clear, if there exist a probable or a possible obstacle in the section immediately beyond, of which due notice cannot be given until it is too late. This argument is so plain and practical that it cannot be rationally contradicted. All that can be urged *per contra* is that the traffic of a line is so heavy, and the number of trains so frequent, that it is difficult and inconvenient to allow such intervals as are requisite for the assurance of absolute safety for the passengers. And this is, in fact, what very frequently occurs.

The question of the length from signal to signal is a detail of primary importance in this view of the case. At Abbot's Ripton the up-signal is only 950 yards from the siding. In other places the distance is not more than 700 yards. A heavy express train, running at the rate of sixty miles an hour, with say sixteen carriages and two break-vans, will often require, when the rails are greasy, a mile's distance before it can be brought to a stop. Thus arriving at the point which we have called *b*, and finding the signal "on," although the driver may instantly reverse his engine and whistle for the brakes to be put on, he will probably run into the coal-train before it has got clean into the siding. Without referring to any case which may be under judicial investigation, it is pretty clear that an accident would be likely to ensue in such circumstances as these. It is also clear that the collision would be justly attributable to the imperfect code given for the working of the line at that particular spot, and not to the signal-man, the engine-driver of the heavy train, or the engine-driver of the fast train.

The real cause of danger and of disaster in almost all cases is the attempt to conduct traffic over the same lines of rail at very different rates of speed. This can only be accomplished by allowing the slow trains to stop at certain points; to run into sidings; and to allow the fast trains to run by without interruption. But the very fact of having to run a train of some thirty wagons into a siding is in itself a serious matter. It consumes a definite period of time, under any circumstances; and many incidents such as the slippery state of the rails, may extend the ordinary time required. For the most part, the present practice is calculated to avoid what are called facing points, which effect the direct diversion of a train in motion by the agency of the pointsman; and the slow train is shunted backwards into the siding in consequence. Here is an additional cause of delay. Again, the plan of the sidings is often complicated, as the requirements of the traffic of a line augment. The up-line of rails crosses the down-line at various points; often at a station,—almost always at a junction. At all these points the risk of collision is multiplied in proportion to the traffic, and the more economically, that is to say the more slowly, the heavy traffic is conducted, the greater is the risk of collision.

Against the mechanical possibility of collision, notwithstanding these complications, it is possible to guard by the use of signals, and a proper code of arrangements. But then the signals must be so arranged, and so worked, as to leave nothing whatever to the chapter of contingencies. For instance, the connexion between the signal-box and the distant signal is still, for the most part, extremely rude. It usually consists of perhaps half a mile of wire, and the mere alteration of temperature between day and night, causes a change in the length of this wire quite sufficient to prevent the signal from answering to the lever. Unless a provision be applied for regulating the wire, the signal-man has to make

alterations in the connexion from time to time. In case of fog, he is unable to see whether his distant signal has actually obeyed his lever. What is called an electric repeater obviates this danger, and informs the signal-man that his movement of the lever-handle has produced the effect he intended. Such being the case, it would seem obvious that the introduction of this, or some equivalent safeguard, is an imperative necessity. If the signal-man, on whom the safety of the public depends, be responsible for the working of a signal at half a mile from his station, it is certain that he ought to be able to tell, absolutely, instantly, and under all circumstances, whether the signal which he has endeavoured to give is actually given. As means for giving him this information exist, we think an honest jury would be very likely to come to a verdict of manslaughter in the case of an accident arising from the non-working of a distant signal, when the signalman had fixed his lever aright, but had been prevented by fog or other cause from seeing that the corresponding signal had not been made at the distant station.

In all cases where safety depends on the observance of signals, a repeat of some kind is an absolute necessity. For a man to give a signal without the certainty whether it is or is not visible to the driver whom it is intended to warn, is worse than to be without signals at all. In the latter case the driver depends on his own observation of the freedom of the line before him. He knows where obstacles are likely to occur, and where, at certain times, they are certain to occur, and he regulates his conduct accordingly. But when signals are given, and especially those distant signals which are required by the velocity of our passenger traffic, the driver depends on them absolutely. It is natural that he should do so. They are expressly constructed for his information, guidance, and direction. If they mislead him, he is blameless, though he may pay the penalty of the error with his life. Whether, then, we look at the responsibility of the Board of Trade, as professing to supervise the working of our railways, or at the liability of the directors or managers of our great companies to be placed in an exceedingly unpleasant position by the honest verdict of a jury, it is pretty clear that some mode of ascertaining whether the signal, at any moment, has obeyed the signal-man, is an imperative necessity.

With the signals rendered mechanically perfect, the next requisite is, that the code should be equally satisfactory. The alterations on existing practices may seem slight; but they make all the difference between life and death. If "Line clear" is given at a station or signal-post as soon as a train has passed it, such a signal, in certain cases, is a cause of danger, and may at any time prove a cause of calamity. If the preceding train has to shunt, the signal, "Line clear" should in no case be given until such train was perfectly within its destined siding. If the train runs straight on, enough time ought to be given before "Line clear" is signalled, to allow it to be well on its way; so that in the case of any obstacle to its progress the succeeding train might have time and space within which to stop. To arrrange such a code as this is a matter of perfect simplicity. It is only the desire to save time that complicates the matter. Apart from the very serious question of line crossing line on the same level, which is a matter demanding independent examination, there is no doubt that signals can be constructed, and worked under a rigid code, in such a manner as to make collision from one train running into another, while stopping or shunting on the same line of rails, a mechanical impossibility. Are the public of this country content to take the risk of the non-enforcement of these conditions?

There is no doubt that very serious attention has been recently directed to this matter. Indeed, the statement has been made, although we are not aware on what authority it is based, that her Majesty's Government contemplates a measure intended to constrain the railway companies to lay down separate lines for the merchandise traffic. The equivalent to be offered for this outlay is said to be the abandonment, on the part of the Government, of the Government duty which now exists in England and Scotland, although not in Ireland. As this duty, however, does not amount to much more than one per cent. of the gross revenue of the railways of the United Kingdom, the compensation would be altogether inadequate. The average receipt per train mile, in 1874, is stated in the Board of Trade return at 68·11d. The expense per train mile was 37·89d., of which the Government duty amounted to only ·72d., or less than three farthings. It is obvious that such a saving would go but a very small way towards paying interest on the laying down an additional pair of lines of railway.

In the case of the Abbot's Ripton collision, the jury have taken upon themselves to decide, as far as their verdict has any weight, a great mechanical and commercial question, which has yet to be fully elucidated and argued out. They have censured the directors of the Great Northern Railway for endeavouring to conduct so heavy a mineral traffic as that which they carry on, without providing a special line of rails for its transit. That the jury, if not outside their right, are outside their information, in giving such a verdict, we think few practical men will doubt. That a censure may be proposed by a jury is undeniable. But as the actual function of a jury is to ascertain whether there has or has not been a breach of the law, we confess that we look at what may be called amateur expressions of opinion with considerable disfavour. They seem to us extremely likely to bring the system of jury-verdicts into further disrepute. If the jury in the Abbot's Ripton case had before them sufficient grounds for expressing marked condemnation, either of the directors or of any of the officials of the Great Northern Railway, the constitutional mode of expressing that opinion would have been by a verdict of manslaughter. The case would then have been open to review; and if the verdict had been given upon insufficient evidence, it would have been reversed, with as much publicity, and with ten times the authority, as that with which it was originally promulgated. As it is, twelve men, selected to inquire judicially into a grave question, have taken the opportunity to declare what may be their unanimous opinion, but something which it forms no part of their judicial function to deliver. Right or wrong, it amounts to no more than twelve private opinions. It has not been shown, either to the jury or to the public, that general safety would be improved by the laying down of "a line for mineral traffic." It may well be questioned whether such an expedient would have any such effect. To lay down a pair of additional tracks, indeed, would be a suggestion more to the point. We conclude that a sort of compromise is indicated by the rather helpless suggestion actually published. But with regard to an additional pair of tracks, much more than such a simple operation, costly as it would be, is requisite to prevent, with any degree of certitude, collision and disaster. It is not on the running part of the railway that collisions occur. As we have before said, it is at the crossings, sidings, and junctions. At almost any great station the system of points and crossings would be rather complicated than simplified by laying down parallel lines of way. To attain the object we all have in view, safety, where two kinds of traffic, differing as widely in their conditions as do passenger and mineral traffic, are each of sufficient magnitude to demand tracks of their own, nothing short of the provision of two practically independent railways will be altogether adequate. Excepting in so far as the price of land is concerned, which of course is a considerable element in the case, it would probably generally cost less to make an entirely new railway than to double the width of an existing railway. That is, of course, considering that it be regarded as a *sine quâ non* for safety that railway shall not cross railway, nor traffic intersect traffic, on a level. Nothing short of a provision to that extent will render collision impossible. And it is only mischievous to lead the public to suppose that the laying down of a third line of rails would have such a result.

How much has already been done by way of laying parallel tracks we cannot at present ascertain. But no inconsiderable progress has been made in that direction. During the four years from 1870 to 1874 nearly 3,000*l.* have been added to the capital cost of every mile of railway, on the average of the net work of the United Kingdom. The fact is so startling that we give the figures, to show that there is no misstatement. The total capital invested in the railways of the United Kingdom at the end of 1870 is returned by Captain Tyler (in the Blue Book, c. 1,332, 1875) at 529,903,673*l.*, or 34,106*l.* per mile open. At the end of 1874 the capital amounted to 609,895,931*l.*, or 37,078*l.* per mile open. The length of railways open at the former date is not given, either in the report for 1874 or in that for 1873. Of course it can be calculated by dividing the capital by the cost per mile; but we are now citing Captain Tyler's figures. At the end of 1871 there were 15,376, and at the end of 1874, 16,449, miles of railway open in the United Kingdom. Thus, in addition to the construction of 1,073 miles of new railway in three years, the cost of every mile of line was raised from 34,106*l.* to 37,078*l.* between December, 1870, and December, 1874. That this great outlay has been mainly made for the accommodation of the heavy traffic we suppose there is little doubt. While the mineral train mileage of 1874 was about 4 per cent. more than the passenger train mileage, the number of vehicles used for the conveyance of passengers, and attached to passenger trains, was less than one in eleven of the total number of vehicles, excluding locomotives. If we take the speed of the passenger trains at only double that of the mineral and goods trains, we shall thus find that, at the present moment, the rails, including line, stations, and sidings, are occupied for twenty-two hours by the goods traffic for every hour that they are occupied by the passenger traffic. Out of a gross revenue of 56,899,498*l.*, thirty-two millions sterling, or 56 per cent., was earned by the goods traffic. The relative cost of running a goods train and a passenger train for a mile, or of the carriage for a mile of a ton of minerals or of a ton of passengers, is nowhere given. Those elements of working cost which would enable an engineer to arrive at the knowledge of this great elementary fact, are not given in the Returns of the Board of Trade. We are told that the receipts per train mile from passenger trains are 60·72 pence, from goods trains, 75·84 pence, and from all put together, 68·11 pence; but we are only furnished with a general cost of 37·89 pence per train mile. It is, however, certain that the goods train, which earns 75·84 pence, must be a much longer, heavier, and more costly convoy than the passenger train, which, at a very much higher rate of freight, earns only five shillings. The public are precluded, by the form of the accounts sanctioned by Act of Parliament, from receiving that information on this important subject to which the shareholders, at least, are fully entitled. But we hope that we have said enough to show that a very important, as well as a very obscure, question is involved in any attempt to estimate the value of the mineral traffic of our railways; and that the idea of enforcing a duplication of their tracks is neither so simple nor so satisfactory as many persons now imagine.

THE BRUSSELS EXHIBITION.

The programme of this forthcoming Exhibition is now complete, and we are enabled to describe its details. The greatest interest and the highest influence have been brought to bear in order to ensure success, and the result seems likely to reward the exertions that are being made. It will be borne in mind that this is not to be a miscellaneous display, in which cabinet work and carpets, jewelry and gold, sculpture and painting, gun-metal and ornamental woods are huddled together in company with a thousand knick-nacks, more or less useful or useless, of artisanship; but an emulative illustration of whatever modern humanity and science have accomplished or suggested in the cause of the public health and safety, and the relief of suffering, by land or sea, all over the world. The idea is comprehensive and expansive enough, and, as was inevitable, some eccentricities of ingenuity find their way in with the rest; but there can be no question as to the general value of the scheme. We are reminded that the present is an age which conducts its operations upon the grandest scale, and that, consequently, its disasters, when they occur, are equally prodigious. Thus, a conflagration may, as in the New World, destroy an entire city; the victims of collisions, burnings, or wrecks at sea are counted by hundreds; every maritime company, almost, owns a fleet; battles are fought by populations rather than armies; the gigantic forces employed in industry are surrounded by similarly colossal dangers; and the very rapidity and universality of action, and the multiplicity of swift and subtle agencies, add to the perils that environ human life. Such, in effect, is the ground upon which the promoters of the Brussels International Exhibition of 1876 have based their scheme. They admit that the principal Governments of Europe, assisted by inventors and constructors of various classes, have given the subject their anxious care; but their desire is to bring together, as it were, an array of comparative groups, the one tending to correct or extend the other, so

that the whole of our science and progress in these respects may be brought into a bird's eye view. If less fascinating than the great world bazaars of London, Paris, and Vienna, the Belgian show will thus be more concentrated and practical, though arranged in a strict series of sections and subdivisions. One distinct characteristic is that the originality or utility of every invention brought forward may be publicly debated upon the spot, and that supplementary experiments, on river and sea, will be carried out at Antwerp and Ostend. So much being said by way of preface, we may proceed to note the special features of the project.

The Exhibition Buildings are in course of erection in the park, at a point about midway between the Royal Palace and the Legislative Chambers, and have been designed less with decorative than with rigidly practical objects. This, indeed, is the principle which the administration has declared its resolve absolutely to enforce. It will admit nothing but what comes within the legitimate limits of the published classification, and nothing but what is plainly distinguished by merit, interest, or superiority of some kind. We may be slightly sceptical as to the fulfilment of this philosophic promise; but, at all events, it indicates a right appreciation of the purpose in view. Nor will dangerous substances of any kind be allowed, while, with regard to whatever is necessarily offensive, it is to be placed under particular restrictions. In the first class are specified apparatus and means for preservation against fire by land and by sea, and in this are included the construction of dwellings, powder-magazines, petroleum stores, and ships, together with preparations for rendering uninflammable timber, woodwork, clothing, furniture and decorations, and lightning-conductors. The second category embraces a number of subtle contrivances for the detection of fire, whether spontaneous in the hold of a vessel or on the floors of a warehouse, or the act of an incendiary. It is a strange circumstance that although many of these inventions have, from time to time, been exhibited and approved of, few are in common use, either through difficulties in their application, or a spirit of parsimony, or doubts of their effectual value. There can be no question, however, that a system of self-acting fire-alarms and telegraphs, at once simple and trustworthy, would be a discovery of incalculable importance, and the examples produced at Brussels will be looked forward to with considerable expectation. But one that failed in the working would, of course, be worse than useless as tending to relax precautions, without rendering them unnecessary. Next come the whole paraphernalia of humane societies everywhere—wall-ladders, roof-ladders, ice-ladders, sacks, escapes, cordage, parachutes, respiratory aids, and ventilators; and, in a fourth department, are water-engines—as they should, perhaps, be termed—with steam or manual power, for decks, for holds, for cabins, for masts and rigging, for kitchens, chimneys, staircases, and every conceivable variety of structure; and we may expect an astonishing competition in hose, joints, taps, pump-actions, reservoir connexions, tanks, and so forth, besides chemical and mechanical methods of extinguishing a conflagration. Here, again, while invention has been at work upon a large scale, no particular process has won wide-spread belief or favour. It appears as if such things are popularly regarded, like the fire-buckets at a bank, as being rather conventionalities than necessities. These, however, are but introductory departments of the Exhibition, which expands thence through all the hazards of swimming and skating; the lighting of shores on seas, rivers, and canals, and under water; signals for ships and railway-trains; sounding-leads; lifeboats, rafts, rockets, mattresses, belts, jackets, bells, and balloons, and models of coast-stations. Really, if the whole of these were practicable, and the whole of them taken into adoption by the world, we ought to hear of very few casualties on earth or ocean. Then, the securities suggested for every description of craft, from the ironclad that could not possibly heel over like the *Captain*, to the tiniest out-rigger that ever skimmed by Mortlake, are scarcely to be comprehended in a single summary, not to speak of hammocks, berths, and cuddies upon hygienic principles, impermeable hatches, safe gangways, railed tops, and comforts for the sick and wounded at sea. Much thought and care have been bestowed upon vessels abandoned or in distress, water-logged or in flames, and there will be an instructive collection—to judge from examples we have seen—of such matters as are generally left to chance,—jury-masts, temporary rudders, sails to fit on every variety of spar, and lockers for open boats in tempestuous weather. Some curious contrivances are prepared for visiting and repairing hulls of any burden which, for whatever reason, cannot be brought into port, but must be taken in hand while still afloat. With them are medicine-chests, wherein every square inch of space is so minutely turned to account that one might suppose a range of Oxford-street shops to have been reduced to sublimates and essences. Thus far with respect to water. Upon land, the road, whether travelled by steam or in horsed vehicles, is the conspicuous peril that presents itself, and it is sought to be mitigated, to begin with, by patent harness, bits, bridles, stirrups, curbs, and reins; but the railway, of course, is most prominent, though we have had many exhibitions in connexion with it, to very little purpose, Heaven knows. Here will be displayed any number of safety breaks, signals, lamps, means of communication between guards and drivers, helps to entering and alighting from carriages, steps, foot-boards, hand-rails, wheel-guards, and "machines and tools for immediate assistance in case of trains running off the rails, or other accidents." We are, moreover, to have snow-ploughs and cow-catchers from the laboratory of American inventiveness, with self-acting gates for level-crossings, and, better still, a way of dispensing with the use of level crossings altogether. From peace,—which has its holocausts, more frightful, often, than war, since women and children and unconscious age are among their victims,—to war itself; and, if ever it can be waged in velvet gloves, Brussels will show how. It is agreed by all humanity that from the moment an enemy is disabled, he becomes, if not a friend, at least no longer an adversary; therefore these litters, portable chairs, and cacolets, these carriages and wagons, specially constructed for the transport of the sick and wounded, and contrivances for adapting ordinary railway rolling stock to the same use, which are already being notified to the Executive Council. In suggestive and formidable proximity with them will be the ghastly cutlery of a campaign, infinitely more hideous of aspect than swords and bayonets,—instrument-cases threatening horrible tortures, boxes of medicaments and lint, stationary and flying ambulances, hospitals, lazarettes, and huts, and an interesting apparatus of "cookery for the wounded," of French invention, we believe. An essential accessory is a series of plans for the preservation, burying or burning of corpses, and the purification of battle-fields and camps. Thence, by a natural transition, we pass to the drainage of marshy soils, the purification of pestiferous land, the cleaning of river and canal beds, paving, Macadamising, public lighting, means of preventing the subsoil being infected with gas, the repair of roads, the construction of scaffolds, the strengthening of bridges under exceptional weights and strains; and, oddly enough in such a connexion, the reclamation of wandering dogs and diminution of hydrophobia. A corner, however, had to be found, we assume, for every order and degree of philanthropy, and as well here as anywhere else. Very practical and useful will be the collection,—though all its specimens may not come within that category,—of church models, plans for ventilating, heating, and illuminating them, hospitals, barracks, schools, prisons, and theatres, public baths, and workhouses. The subject of water supply is not neglected, and the latest suggestions are to be presented of reservoirs, main and subsidiary pipes, meters, fountains, taps, plugs, and filters, in most of which the French, Belgians, and Germans, whatever may be said to the contrary, are lamentably deficient, except in their principal cities. They are, for the most part, not less backward in their water than in their drainage arrangements. On the other hand, they will probably prove themselves deserving of praise with regard to their slaughter-houses, markets,—the latter especially,—and shops. We shall see, however, their newest proposals for the disinfecting of towns; the removal and appropriation of cinders, ashes, and waste; the meeting of certain wants disgracefully overlooked in England, and the general extirpation of nuisances like those which affront every sense in nearly all the smaller towns of the Continent. A question of the day is to be illustrated by projects of morgues and mortuaries,—improvements, it may be hoped, upon those of Paris and Munich, and upon the detestable dead-houses of London,—and of vaults, tombs, and graves, as little melancholy as such things can be made without being rendered frivolous or grotesque. We are also promised some hints, illustrated, however, only by models or on paper, about cremation and embalming. The Exhibition will next set forth a view of sanitary workshops and factories, safe mine and quarry interiors, lifts and cages for workmen and loads, the protection and improvement of machinery, with a view to the lessening of danger. There is a class to which the public will look with no slight curiosity,—substitutes for deleterious materials employed in manufactures and the arts, apparatus for reducing the inconvenience and evil caused by dust, noxious vapours, stoves, and excess of gas, and special dresses for special occupations. Model private habitations are to occupy one section, and gregarious habitations, if the term be permissible, another, with all the conveniences and appliances essential to both. Passing the clothing and cookery classes, we shall meet one of peculiar utility; that is, of suggestions as to the cleanly and wholesome preservation of food in the dwellings of the poor. Any dark and airless hole is usually considered good enough for a cupboard or a pantry, and the result is that provisions get prematurely tainted. The Dutch contrivances in this respect, are admirable, and perfectly easy to adopt. Little is to be said about children's toys and home gymnastics, though they illustrate a unique industry; but considerable interest attaches to the salubrious and economical construction and fitting-up of stables, cattle-sheds, and other rural buildings, of swine-houses and kennels, and, of course, above all, of abodes for the agricultural labourer. It will be confessed that the programme is large and elaborate, but our view is far from having comprehended the whole of it. The inventors assembled at Brussels will undertake the protection of houses from the effects of excessive frost, the teaching of the farmer with reference to the healthier disposition of manure in storage; the pointing out of means for finding water for fertilising purposes, where it is supposed to be scarce, and how to clear fields from mud after sudden inundations. No doubt, it is already evident from their own accounts of their several projects, that a good many of the intending exhibitors miscalculate the value of their inventions, but that in all such emulations is inevitable. The very object of them is to sift the suggestions of modern ingenuity, and separate the practical from the futile.

FURTHER NOTES AT BURLINGTON HOUSE.

As at the previous exhibitions, Gallery IV. is appropriated to works of early, or comparatively early, Italian art. Occupying (justly) a central position, is a work of that remarkable, and in this country little represented artist, Luca Signorelli, whose strong and almost defiant originality seems to be stamped upon everything he produced. The present work is a fresco successfully transferred to canvas and framed, representing the interview between Coriolanus and his wife and mother outside the walls of Rome. In spite of the peculiarities, we might say angularities, of the painter's style, this is a work in its intent and meaning full of a noble pathos, and illustrating also what has been remarked by able critics as to the part Signorelli played in initiating new and striking positions of the figure, in which to some extent he was the forerunner and anti-type of Michelangelo. The moment of reconciliation of the hero is evidently impending; the two Roman ladies stand before him, a mingled dignity and supplication in their figures, half bending forward; this combined air of earnestness and hesitation pervades the whole group; Coriolanus spreads his arms wide with a gesture which might be attributed either to affection or expostulation; the little boy moves forward to embrace his father, but looks back to the mother as if for permission to do so. The evidence of the thinking out of his subject by the painter is very clear and interesting. On either side of this fine work are two companion pictures by Sandro Botticelli, of the same subject, "The Virgin, Child, and St. John" (190, 197), both fine specimens of this painter in his quieter subjects, and in execution superb in their way, and if (as appears) they are really untouched, their preservation and brilliancy are astonishing. The combination of colour in the draperies in No. 197, the finest of the two, is very rich and harmonious. A "Virgin and Child" of Pietro

Alemanno, in the same neighbourhood (193), is a fine specimen of decorative painting, in the brilliant, hard finish of the elaborate design of the dress; and a curiosity, in quite an opposite way, is the small "Jupiter and Semele," of Schiavone, lent by Mr. Leighton, where the god comes tumbling through the air, with a general cut in his countenance and robes which suggest the idea of a high priest let loose. The "Triptych," by Giotto (187), containing a number of small subjects from the life of Christ, is disappointing; it is a mere curiosity, the designs for the most part being rough and crude to a degree. The two specimens of Mantegna's well-known monochrome style, "Judith and Dido" (179, 182), are also disappointing, not presenting the ideal grandeur of form and conception which marks others of his works in this style. Memling's "Virgin and Child," with the donors of the picture, the Donne family (172), is a well-known and exceptionally fine specimen of the painter; one may notice the care, and, as far as the painter could go, the realism, with which the extended landscape seen through the architectural background is painted. Filippino Lippi's "Adoration of the Magi" (170) is a work of precisely the same type as, but not equal to, the picture by him of the same subject shown at a previous loan exhibition; the Virgin enthroned on the steps of a nondescript architectural erection, with the pillars and roof half broken away to show the sky and the rest of the composition. The architect may note the section of the roof-framing left exposed, with the purlins suspended beneath, instead of resting on the principals.

It is interesting to contrast the two very fine specimens of ideal figure-subjects by Titian and Correggio, in Gallery III.—"Europa" and "Venus disarming Cupid" (123 and 131). In the latter we see in a marked degree the beauty and also the limits of Correggio's art; the delicately modelled figure and soft rounded relief of the limbs, in which the outline "loses itself" in what was at one time supposed by critics to be the *ne plus ultra* of painting, is so charming in its way that one half forgets the comparative weakness and conventionality of the style. The Titian is a wholesome corrective to these blandishments. It is true his treatment of the "Europa" legend in this case is anything but idealised as far as regards the principal figure, which is, in fact, simply a scantily-clad and somewhat coarsely formed woman in a very ungraceful attitude; but the power and vigour of the whole thing makes Correggio seem rather harmless by comparison; and in tone, in that rich deep lustre of surface which belongs to Titian at his best, the work is superb. The group of the little Cupid and his dolphin to the left might be taken by itself as a model specimen of Titianic workmanship. One of the most interesting works in this room is the Giorgione lent by the Earl of Derby, the "Head of Pompey brought to Cæsar" (138); a long picture, almost of what may be called a decorative type, wonderfully rich and harmonious in the combination of colour in the costumes, but curiously deficient in finish of detail in the faces and even the drawing of some of the figures, though the grouping is thoroughly connected and consistent, and every figure has its relation and varied expression of manner, if not of countenance, in regard to the central incident; it is a highly interesting specimen of the painter in a manner of subject and treatment differing from that by which he is best known.

Two or three specimens of Henry Fuseli in the collection may be taken as warnings to those who are tempted to desert nature, under the idea of going beyond her. His "Macbeth" (248) exhibits most fully his peculiar power and his perhaps equally peculiar faults. The witches are effective—here the painter was in his element; Macbeth, with the un-naturally glaring eye and the usual Fuselian length of leg, is a figure bordering on the absurd. To drop at once from very tragic tragedy to very comic comedy, Hogarth's small portrait picture representing the "First Performance of the 'Beggars' Opera'" (100), has interest of more than one kind. The actors are in the centre, and the "distinguished audience" to the right; *Captain Macheath* is just in the dilemma which leads him to exclaim:—

"Which way shall I turn me? How shall I decide?"

It is worth notice how much of the very highest quality of painting is illustrated in this small picture of a by-no-means "high-art" subject, as that used to be understood; humour as delicate as that of Fielding, admirable grouping, decisive yet harmonious colour, go to make up a remarkable work of its kind. The kneeling figure of *Polly Peachum* is most excellent; pathetic, yet with a touch of humour in its pathos. A perhaps still more remarkable picture of the life of a past period, and also a portrait work, is Gainsborough's "Ladies walking in the Mall" (278), one of the most charming and original things he ever painted. It is a comparatively small picture, showing us a broad walk under the shadow of masses of June foliage, beneath which, in groups of twos and threes, walk the Lady Bettys and Lady Kittys of the period; some rest on seats at the side; one remarkably graceful girl is conspicuous among the seated group on the left. What strikes one is the consentaneous waft and movement of the whole picture; even the trees seem painted with an unusual breadth and freedom, and, swaying in the breeze, combine, with the dresses of the ladies, to give a general idea of the rustling of soft plumage everywhere throughout the scene; and as we look at this group of youthful, buoyant figures, moving about with the light elastic step of high birth and breeding,—this wave of the tide of life, thus caught as it passed by the artist,—it is almost with a startled revulsion of feeling that we remember that all of them are gone, gone long ago, and that the great-great-grandchildren of some of them may come here, young girls like these, to look at this very picture.

Among the *genre* pictures of the Dutch school, not very numerous in this year's collection, two are worth special notice. "The Violoncello," by Metzu (163), is remarkable not only for its exceptionally fine execution, but for the interest and individuality of the group portrayed, and the life-like suggestion of the whole composition: the player is seated fronting the spectator, just in act to commence; another figure stands in the gallery just over him, an expectant listener, and a singularly plain woman in a very picturesque dress stands on the stair leading to the gallery, holding out a sheet of music to the player. The other work is a very fine specimen, the only one exhibited, of Nicholas Maas, "Woman seated at a Pianoforte" (240), unusual in composition; the pianiste is seated with her back to the spectator in the front room, and through the open door we look through a range of rooms receding in perspective, with another figure sweeping the floor, in the distance; the whole of the rooms are lighted through windows on the right by a strong sunlight, which throws its successive range of lights on the floor: what is remarkable is the combination of a strong effect of light and a very realistic and forcible painting of detail, without the slightest hardness or loss of atmospheric effect. A panel of studies of animals, by Paul Potter (168), is full of interest.

Among landscapes the largest and the smallest in the collection have each a specialty of interest in their way: the first, the so-called Rubens, a large bare barren-looking landscape of most uninviting tones, with the Escurial situated in the midst of it, is noticeable, in connexion with the long story attached to it in the catalogue, as one more example of what was a frequent practice of Rubens, of painting a certain proportion only of a work himself; as much, in fact, as he considered the money's worth of his commission; adding his sign-manual to it and letting it go to a certain extent under his name. The smallest is the landscape by Raffaelle (178), a little painting on panel, 6 in. by 4 in., looking more like an imaginary composition than a transcript of nature; a river and bridge and mill near the foreground, the middle distance a good deal lost in shadow, and the distance closed by a range of hills, behind which a white light as of early morning rises. Hard as it is in texture, there is a great and scarcely explicable charm in this little work. Turner's "Lowther Castle" (33) needs no comment; on either side of it are a small Crome and a small Constable (30, 38), of singular beauty of feeling and composition, and adjoining it Richard Wilson's exceptionally fine "Tivoli" (37), notable for the pellucid clearness of the atmosphere in which the famous group of buildings on the rock stand up on high in the composition. Gaspar Poussin, Both, and Rosa are well represented. More special interest attaches to the less popularly known works of De Koning (147, 165); the latter of the two is the finer work, and in composition, and a peculiar power in giving the perspective extent of the landscape, has the characteristics of a Turner of the first period, though differing greatly in tone. Attention should be given to the Earl of Radnor's large Wynants also (229), a work which at first sight looks somewhat hard and repellant, but which will be found to have very subtle beauty of light and composition on closer study; the distance, though actually hard in comparison with the average of good landscape-painting, is effectually kept in its place by the almost metallic sharpness of the foreground detail, where the foliage appears as if cut out in bronze. A small landscape by Wilkie (26) is a sufficiently out-of-the-way thing to be noted; and the architectural visitor must not forget to look at the Vander Heyden (217), with the buildings on the canal bank so lovingly and exactly finished; and at Guardi's "Church of La Salute" (72), a splendid piece of architectural painting.

In noticing the portraits a week or two since, we accidentally omitted mention of one far too individual and unusual to be passed over, that of Pococke, the African traveller, in an Eastern costume, by Zoffany (51), a very fine and striking work; had Zoffany always painted so forcibly as this his renown would be much higher than it is. And we direct attention also to a work of rare merit in feeling and sentiment, the "Reconciliation of Olivia Primrose with her Mother," by Newton (265), a painter who was represented by some such very weak productions in former loan exhibitions that his right to be there at all might well be questioned (as it was); but this work, with undeniable shortcomings of technique, is full of genuine pathos and delicacy of feeling; the sad figure of poor Olivia leaning her head on her father's shoulder, the rigid virtue of the mother's pursed-up mouth and vulgar features, the beseeching countenance of Sophia, who kneels at her side, the puzzled concern of the two little boys, are all in complete keeping with the story, and we do not know that the immortal family of the Primroses have ever been better represented on canvas. To the younger generation of critics and spectators Newton is nearly a forgotten reputation, but such a work as this shows that his place among the painters of his day rested on more solid merits than it has been lately the fashion to concede to him. It is curious to reflect that this painting, if sent to a modern Academy exhibition, would run the risk of refusal, on the ground of careless execution, and yet it may be doubted where, among English painters, we could look at present for the same kind of unpretending pathos and delicacy of sentiment in the treatment of such a subject: so much has execution of late years predominated over feeling.

THE INSTITUTE.

As we anticipated, the third special meeting last Monday evening, to consider the questions arising out of the recent report of the Special Committee, was smaller and much more unanimous than the first two. The question of the retention of the charter having been settled, the spirit of fight had lulled, and the meeting resulted in the unanimous acceptance of the amendment of Mr. Horace Jones, and the rider to it by Mr. Cates, which we printed in a note to our article of last week. Mr. Seddon and Mr. Douglass Mathews, both of whom had proposed a list of suggestions which had been printed in the circulars, agreed to waive all special recommendation of their views, and to take the shortest course of letting their suggestions go, with other matter, for the consideration of the Council. A well-deserved vote of thanks to the Special Committee, proposed by Professor Kerr, was passed "with effusion" (as the French put it); and we hope these gentlemen, who have worked so hard and with such excellent intentions, will get out of their heads the idea that their work has been either under-valued or wasted: it will form the basis, we hope, of some really desirable and workable scheme for the permanent advancement of the Institute. An equally well-merited vote of thanks to the chairman (Mr. Whichcord, vice-president, to whose excellent supervision of the meetings we before referred), proposed by Mr. Horace Jones, received equally prompt ratification, and terminated at a comparatively early hour a sitting which at least served to show that architects, like some other people, exhibit wonderful unanimity when they do agree.

It now rests with the Council, with whatever other advice and assistance they are empowered by Mr. Cates's resolution to call in, to reconsider and blend into a "harmonious whole" the manifold suggestions (many of them, however, tending quite in the same direction) which will be before them for manipulation. We will just add that the two lists of suggestions referred to above form a valuable contribution to the subject, and should receive due attention. Our

opinion as to the idea of a new house for the architects, which forms a leading point in Mr. Seddon's list of propositions, we expressed in our article last week; and some of the suggestions made by Mr. Mathews are eminently practical and sensible.

We may remark that Mr. W. White, at the commencement of the meeting, called the attention of those present to the very point in regard to the charter which we have already touched upon—the totally imaginary character of the obstacles to the regulation of the ballot for admission of members, which have been supposed to be involved in the terms of the charter. As some of the members seemed still to regard the charter as a bugbear in this matter, we beg permission to refer them to our remarks last week (p. 114, *ante*), and to ask them to compare the passages there mentioned, and to "put two and two together"—a simple operation which would often remove many imaginary difficulties, and which is quite easy, if people will only try it.

ARCHITECTS AND THEIR WORK: PAST AND PRESENT.

As there is now some "stir" in architectural circles, and as the movement includes so much that must necessarily be new, it may be of interest to give a passing glance at some one or two of the phases through which architecture as a fine art and a *practical* science has gone in its eventful career. The present always, as perhaps it should do, takes up so much of active men's attention that but few have the time, if the inclination, to go much out of it, either backwards into the past or forwards into the future. But both are worth the attempting every now and then; for much that is instructive may be got by it. If the present of architecture be somewhat of a puzzle, as most assuredly it is, then is the past of architecture a thing not a little strange, and hard to understand and to realise. No two phases of anything were, or can be, more diverse than the old ways of things architectural, and the modern and every-day mode of architectural work. A few thoughts on these contrasts may not be without a certain use just now, and of interest most certainly they must needs be, however looked at.

First, then, a word as to the present. By going up and down a few of the leading thoroughfares of great London city, it is possible to get sight of well-nigh a specimen of every "architecture" that has ever had existence all the world over, and of every date, from the earliest down to the very last, whatever that may be. We are speaking, of course, of examples of those styles of architecture which have had a distinct existence and a distinct individuality, such as the Gothic or the Renaissance, or the Greek. This is, of course, an obvious thought enough. No one denies the fact, or has ever attempted to disprove it in any way, or perhaps even to lament it; though this last has been done. But obvious and patent as it is, if we but cogitate it a little it is one of the most curious and momentous of artistic circumstances. It is altogether unique in the world's artistic history, and belongs exclusively to the *present* order of things human and mundane. How exactly it has all come to pass would be in detail a very curious subject of inquiry, and might here and there puzzle the most acute and philosophic to account for duly, and to fully explain. We are nowadays so used to a house, or a warehouse, or a palace even, springing up in a new style of art, suddenly imported, that no one sees anything very startling in it. It is looked at first for its novelty, and the eye wanders on naturally and instinctively to a something else. But the time was when an event of this kind would have been a simple impossibility, and could never have occurred except under circumstances little short of miraculous. Let us go back a little in time, and look at things as they at one time were.

It is difficult indeed to get at the very beginning, or primitive cause, of a style of art or architecture;—to get a glimpse of the very first building of solid and enduring form built up in a country, and by a powerfully individualised race of men. In old Egypt, for instance, we seem, when looking at its temple architecture, and even, in a dim sort of way, at its common "house-building," to be gazing at them in their fully-developed state, and in their maturity of settled forms. It is, however, all Egyptian work, and Egyptian only. There is no sign in either temple or house of *borrowed* or copied work. It is all of it indigenous, and of the country and people. No Egyptian architect would seem ever to have thought for a moment of going out of his own country to borrow an art thought or an architectural idea from anywhere else under the sun. He uttered his art thought and his architectural ideas, as he spoke his own language, without the most distant idea of using any other. It was for Egypt and for Egyptians that he designed and built, and he never gave a thought to any other. Was this a strength or a sort of weakness? Do the great temples suffer from this narrow exclusiveness of view? Would they have been better, or more expensive, if but the designers of them had travelled—say to Assyria—and picked up notions from the artist-minds there, and imported not only their mental ideas, but brought back bodily the very forms and very presences of Assyrian art thought?

It is impossible to think so. The very strength and might of the Egyptian work lies in the very essence of it, in its own inherent individuality, and the power of the Egyptian workman lay in his doing his own specialised work, in his own,—if we must say it,—narrow and exclusive way! And yet he was a real workman, and has left his "mark" on the world's surface, if ever man did anywhere. It would be difficult indeed to say where he failed, and where the work he did could have been improved by dint of any amount or kind of borrowing. We must need take his work as he did it, and as Egyptian work *per se*. It needs only to be looked at. Let us take another glance at another people, equally individualised, though in so different a way, and who certainly had no need to borrow,—the Greek. The old Egyptian was no traveller, that is pretty certain, but the antique Greek was, and he has been accused more than once of going into other lands, and amongst other peoples, and picking up ideas, and then bringing them home and utilising them, and,—as it has been said,—"making them his own," by passing them through his own mind before putting them into forms of his own. Now and then he may have done this, for well did he know how to do it, but never was the skill to borrow less needed. The antique Greek needed but to know what was wanted, and the material for it, and he could go to work without help from any, and could then fairly defy the world to do the like; or to, in any way, surpass or even to equal the work he produced. But what he did in either case was all purely Greek, and nothing but Greek. It was Greek in idea and thought, and feeling, and was always worked out in a way purely, and thoroughly, and entirely Greek. No one can possibly mistake it, or can hint at any external influence which could improve it. We are content with it as it is, and certainly do not need to regret that the great artists and architects of the "antique" had no foreign art or architecture to copy from; and to so far change in any way the direction and individuality of their own thoughts, either in architecture, or, indeed, in anything else. The whole strength of the matter lay in the Greek himself, and in his own special power of imagination and "individuality" of work.

We would but glance at but one more of the world's art and architectural thoughts,—the Gothic,—of the Middle Ages. Work not strange, like that of Egypt, or "pure" like the Greek; but to a certain extent familiar, and well worn, and as workable, nowadays, as ever it was, at least according to not a few. But though it be thus familiar as household words, and is as useful in its well-worn and current forms, in the modern office, as any other of its familiar things, it is not a little curious to go back in thought to the times of any one of its great national phases, as worked out in any special country wherein it obtained; as in this,—in the Early English days by way of example. And to narrow the view for a moment, consider how narrow things then were. No designer in the "Thirteenth Century," it is quite certain, with the Early Gothic forms as the art language of the time, ever for a moment thought of going back to the then worn out, though existing "Romanesque," either for one idea or for a quaint form even. Indeed, it is surprising to find,—as we may find if we look for it,—how totally indifferent the men of that particular age were to the labours of those who went before them, and who did their own special work, *i.e.*, the Romanesque, so well. The then older work seems to have been simply ignored. A building in its style was used as usual, and *added* to in the *new* style if need were, but if found too small or unfit, away went the old work, however good and true, and the very forms of it were without mercy sacrificed to the commonest exigencies of the new structure,—as in York Minster,—where the fine "Norman" work of the old cathedral forms the foundation and inner walling, and "rubble" work of the new cathedral!

But in these modern days of architecture, all these "ways of old" are changed indeed! The old world's architects could not, if they were in the flesh, conceive of our method of work, even for a moment. All our art education, multifarious as it is, and daily getting to be more and more so, would have utterly confounded them. The multitudinous styles of art, as seen all about us, and at every turn, would have more than puzzled them. In their simple way of going to work, and providing for the wants of the community, they doubtless every now and then found difficulties enough as it was; but our difficulties would have indeed confounded them. It is useful to look back a little sometimes, and see how things were once on a time done. Can it be said that the architecture of the present is a finer or more expressive thing than that of the Gothic of the thirteenth century? We have almost no end of "precedent" to go by; they, strange to say, had actually none. A stranger or a stronger "contrast" there cannot possibly be. If a multiplicity and diversity of knowledge, got from every age and country, be an artistic advantage, and a cause of good work, then ought the present, indeed, not only to equal the past, but almost infinitely to surpass it. Who will contend for this? It is really surprising to think of how little the old world's architects had of what we have come to consider so essential. The old builders knew of no art-language but their own; they even rejected that spoken by their immediate predecessors, and worked out their own thoughts in their own way, rejecting all else. If "education" is to be tested by results, then, indeed, must there be mysteries in and about it, which have escaped hitherto all the cogitations and speculations of the most erudite and advanced. We might say a good deal here perhaps to the purpose just now when so much is being thought of in the educational way, in art education more especially. But in forbearing, it may be useful, as we have hinted, to go back a little in time, and see how they fared who did all their work so well, and so truly, that *we* are but too well content to take it all as models to go by, and as an art language, or languages, to utter our thoughts in. What a Middle Age architect, or workman, would do now-a-days, or could do, if amongst us, with nought but his own acquirements to aid him, limited as they would be found to be, may be a curious question. It would seem a little singular that no one has yet speculated about it. And if the man of the Middle Ages, then still more he of the antique Greek time, with all things and surroundings so different from the present. He at least must have been to a certain extent "educated," and after a certain kind. But in what did it specially consist? And how far and in what way did it aid his natural and inherent faculties as an artist? How far can any "institution," whatever it may be, *help* the artist, and what would be the kind and power of an Institution now-a-days, and what would or ought it actively to do, to put the artist of to-day in the position to do, not only what they of the old days did, but more? More they ought to do, for how wonderfully in advance is the modern man, aided as he is on all hands, with new powers never dreamed of before, with new materials never before seen, and with well-nigh boundless wealth. What ought not the artist of to-day to do? And the question is—*how* is he to rival the work of the past, not in means and ways only, but in artistic results?

THE SOUTH METROPOLITAN GAS COMPANY AND THE PROPOSED AMALGAMATIONS.

THE amalgamation movement amongst certain of the metropolitan gas companies has evoked a strong opposition to the South Metropolitan Company being included in the proposed fusion, and a memorial on the subject has been forwarded to the Board of Trade by the Lambeth Vestry. The South Metropolitan Company is placed in an exceptional position when compared with the other companies on the important subject of charges. The memorial to the Board of Trade puts the case against amalgamation of the South Metropolitan with any other companies in a strong light, showing that whilst the price charged by the South Metropolitan Company at the present time is only 3s. per thousand, the

charge by some of the other adjoining companies who are desirous of amalgamation is 3s. 6d., 3s. 9d., and 4s. per thousand; and, moreover, that although the charges of the last-named companies are higher than those of the South Metropolitan, their illuminating power is actually less. Under these circumstances, the memorial states that an amalgamation would in all probability have the effect of raising the price of gas beyond that now charged by the South Metropolitan Company, in order to enable the amalgamated companies to pay a dividend at the rate of more than 10 per cent. The memorial presses upon the Board of Trade that neither the Amalgamation Bill nor the Bill of the South Metropolitan Company for powers to revise its price and dividend, should be permitted to receive Parliamentary sanction without a guarantee that the shareholders shall not be allowed to receive an increased dividend by the charges at present made by the South Metropolitan Company being raised to the consumers within its district.

LONDON BRIDGE.

A SPECIAL meeting of the Court of Common Council was held on the 3rd inst. at the Mansion House, for the purpose of discussing an important resolution with regard to the proposed widening of London Bridge. Mr. H. A. Isaacs, pursuant to notice, moved:—

"That in order to meet the wants of, and to relieve generally, the continuously increasing traffic of this City, it be referred to the Bridge House Estates Committee to consider and report as to the desirability, and the approximate cost, of erecting a bridge over, or a subway under, the Thames, east of London Bridge, and that the said committee be authorised to confer with her Majesty's Government upon the subject."

In moving the resolution, Mr. Isaacs argued that no possible means of widening London Bridge could give the desired permanent relief to the congested arteries of traffic, even were the approaches to the bridge widened. Mr. W. S. Gover seconded the motion. Mr. Washington Lyon moved, and Mr. Bengough seconded, the following amendment:—

"That it be an instruction to the Bridge House Estates Committee to consider and report upon the approximate cost of erecting a bridge for general traffic over the Thames, east of London Bridge, but within the City limits; to ascertain the probable effect on the value of wharf property between London Bridge and the proposed new bridge, if erected; and also to obtain a return of the number and tonnage of vessels discharging and loading in the river within such limits."

This amendment was lost by a large majority. Another amendment was then moved by Mr. Hicks, and seconded by Mr. McGeorge, in these terms:—

"That the Bridge House Estates Committee be instructed to proceed forthwith with the widening of London Bridge in accordance with their report, and that it be further referred to them to examine and report as to the practicability of building a bridge or subway to the eastward of London Bridge, with the probable expenses in connexion therewith."

This was lost by 66 to 77. A division was then taken upon the original motion, which was carried by 78 to 67.

The discussion occupied the Court four hours.

THE ENGINEER'S PLACE IN NATURE.

SOCIETY OF ENGINEERS.

AT the first ordinary meeting of the Society of Engineers for the present year, held on Monday evening last, at the conclusion of the ordinary routine business, Mr. Vaughan Pendred proceeded to deliver his inaugural address. They had all heard a great deal, he said, of a subject very interesting to biologists, namely man's place in nature. He hoped they would give him a patient hearing while he said something concerning the engineer's place in nature. Mr. Pendred then went on to define what an engineer was, and to explain that the engineer's place in nature was that of the great civiliser. He pointed out that nearly all the natural comforts of life were due to the engineer, and he urged that the engineer had great privileges and grave responsibilities. One of the great privileges was that he alone could supply the soundest investments for the great mass of capital now lying idle to the great injury of trade in this country. He then expressed his opinion that engineers in Great Britain had during the last year or two manifested less energy than was desirable in supporting new engineering works, a circumstance originating, no doubt, in false delicacy, and certain to operate injuriously on the best interests of the nation. The privilege of the engineer was to find employment for money in developing the revenues of his and other nations, and so advancing civilisation. The responsibilities of the engineer were defined by the fact that unless he exerted himself energetically, much suffering and disease and want of civilisation must continue to exist. The engineer alone could improve the mutual economy of the world, and if the world was to be happier and better, the engineer, and the engineer alone, could produce that result. He might be asked what the engineer was to do, but he would not attempt to lay down principles of action which would suggest troubles to thoughtful members of the profession. He might point out, however, that a great necessity of the day was the improvement of the water supply of our towns and cities, and that this work required the best attention of the profession, which would find plenty of work in supplying the want. The regulation of our rivers so as to prevent floods in winter, and to secure the storage of water in summer, was another great work. But the greatest of all was the cleansing of the country by an efficient method of dealing with sewage.

The address was well received by an appreciative audience, and at its close a cordial vote of thanks was accorded to the President.

"KNIGHTSBRIDGE BARRACKS."

A PAMPHLET under this title, on the Government proposal to rebuild the barracks on the present site, written by Mr. Elsworth, the hon. secretary to the Knightsbridge Improvement Committee, has been published by Ridgway. We are wholly with the writer in his opposition to the proposal in question, but we cannot praise him for the tone adopted towards those who happen to think differently. The chief result of the pamphlet, we fear, will be to confirm the *Times* and the Commander-in-Chief in their advocacy of the present site. Mr. Elsworth would have done better had he striven to persuade these powers to re-consider the matter. We have no hesitation in asserting that any Government which replaces the present block and nuisance in the high road will provide for itself a constantly increasing amount of obloquy and reproach.

SURVEYORS' CHARGES.

SHOPPEE *v.* ORME.

THIS was an action brought in the Westminster County Court on the 2nd inst. (before Mr. Francis Bayley, judge) to recover 20*l.* 6s. 6d., being professional charges for assisting in the survey and valuation of three houses which it was alleged had been damaged by the erection of new Board schools under the following circumstances.

It appeared that in July, 1874, the plaintiff, Mr. C. J. Shoppee, was requested by a Mr. Foster, the defendant's solicitor, to assist in estimating the damage done to three houses in Lombard-court, St. Giles's, belonging to the defendant, and which had been injuriously affected by the erection of the new Board schools in that locality. Nothing was said about the charge, but when the bill was sent in the claim was disputed. The sum ultimately obtained from the School Board was 750*l.*, but the plaintiff only charged commission on 700*l.*, and that at the rate authorised by the scale in general use amongst surveyors in estimating compensation cases.

In cross-examination, the plaintiff said he had charged three guineas a-day for his attendances on the arbitrator and solicitor in connexion with the business. Mr. Foster did not tell him to send in his evidence in writing instead of attending upon him.

Mr. Robert Collar Driver, surveyor, of No. 4, Whitehall, said he considered the account a fair and proper one, and according to the scale recognised by the City of London, the Metropolitan Board, and the School Board.

Mr. Virgo Buckland, surveyor, of 66, Cannon-street, considered the charge not only fair, but moderate.

This was the plaintiff's case.

For the defence it was contended that the defendant had employed Mr. Cook to estimate the damage done to the property for the purpose of basing a claim against the School Board for compensation. The plaintiff simply went over the premises with Mr. Cook to assist him in making the valuation. After proceedings had been commenced to enforce the claim they required the plaintiff's services as a witness, but the valuation had already been made by Mr. Cook, who sent in his report. Plaintiff was requested to put his evidence down in writing, and he was also occupied an hour or two in attending Mr. Foster and Mr. Cook to look over the premises, but he was never employed as surveyor for the purpose of valuing the damages, which was intrusted to Mr. Cook. It was also contended that the scale in question only applied to cases where the surveyor was employed to value and report, and not simply to give evidence as a witness; that a surveyor was not a scientific witness in the ordinary acceptation of the term; that a witness under ordinary circumstances could not claim compensation for loss of time in attending to give evidence, beyond the usual scale fees for allowances to witnesses; and that, therefore, plaintiff being a surveyor, could not charge more than 1*l.* 1s. per day for his attendance, whereas he had charged 3*l.* 3s. It was also contended that where an agreement to pay more than the scale fee was made, the extra amount could not be legally recovered.

Mr. Robert Orme, the defendant, said the plaintiff was not employed above three-quarters of an hour in going over the premises. He did not go into the lower part of the houses at all; it was merely a superficial look round. Mr. Cook was employed to value and report upon the property, and witness paid him 10*l.* for so doing. The case was settled by the property being purchased by the Board. Had tendered plaintiff 8*l.* 8s. for his services, which he refused to accept.

His Honour said he thought the plaintiff was entitled to a verdict. It was the same thing as a man going into a tailor's shop and ordering a coat without any agreement as to price. All that the plaintiff had to show was, not were his charges similar to those made by other surveyors, but were they such as he was in the habit of making? It was immaterial whether the plaintiff took an hour, or two or three days, in making his survey. He had done all he was required to do, and was therefore entitled to recover. Judgment for the plaintiff for the full amount, with costs.

THE WEYMOUTH SURVEYORSHIP.

THE first business at the meeting of the Weymouth Local Board, on the 31st ult., was to consider the resignation of the surveyor, which was briefly announced in a paragraph in the *Builder* for the 29th ult., p. 109. From a long report of the proceedings, which appeared in the *Dorset County Express* of Monday, the 7th inst., we learn that some members of the Board were in doubt as to whether the surveyor was in earnest in tendering his resignation, or whether it was sent in in a "bit of a pet." Inquiry soon set the point at rest, and then commenced a discussion as to whether the surveyor had been quite fairly treated, some members taking the negative side, and apparently with justice; for Mr. Wallis, one of the members, is reported to have said that "he did not blame the surveyor for resigning, after being knocked and kicked about" [the expression, we take it, was used in a figurative sense]. In the course of the discussion, according to the *Dorset County Express*,

Mr. Snook said there was an article in the *Builder*, on the subject of the Weymouth surveyor, and somewhat, he thought, reflecting on the Board.

Dr. Drew said that must have emanated from some gentleman in the town.

Some Councillor thought it was likely to have been written by a gentleman at Dorchester.

If it is the eight-line paragraph we published a fortnight ago which is dignified by Mr. Snook with the title of an "article" (and no other paragraph or article on the subject has appeared in the *Builder*), any one who cares to turn back to it will see that it makes no reflection on the Board, but merely announces the resignation of Mr. Seaman, and states the purport of the letter giving his reason for so doing.

A motion to accept the resignation having been agreed to *nem. con.*, it was ultimately resolved to insert advertisements in the *Builder* and other newspapers, for a surveyor, at a salary not exceeding 250*l.*, to devote the whole of his time to the duties of the office. The Board had only been giving Mr. Seaman 100*l.* a year, but he was allowed to take private practice.

BRITISH ARCHÆOLOGICAL ASSOCIATION.

AT the meeting, Feb. 2nd, Mr. H. S. Cuming (in the chair) described the sword recently found on the site of the New Opera House, and which was exhibited; also a poniard from the Bailey collection. The Rev. S. M. Mayhew exhibited several Chinese objects made of rice. Mr. Thairlwall, Mr. Brent, Mr. Brock, Mr. Wentworth Huyshe, Mr. Cuming, and other members, exhibited a variety of Egyptian antiquities, consisting of sepulchral figures in blue glazed pottery, stone figures with inscriptions painted or incised, scarabæi, beads, ornamental emblems of the *bat* or nilometer, pillows, amulets, the two fingers of the right hand inscribed, base of a sepulchral cone, a rare specimen of a bronze *horus*, and other deities from the Egyptian pantheon, footboard of a mummy case *cartonnée*, a mummied leg of a child and head of a greyhound dog. The collection was described by Dr. Birch, whose instructive remarks were listened to with great interest. In the discussion which followed, M. Maville, of Geneva; Mr. Kerslake, Mr. Thairlwall, Mr. W. de Grey Birch, and Mr. Cuming took part.

MONUMENT TO GENERALS THOMAS AND LECOMTE.

THE last number of the *Revue Générale de l'Architecture* contains an illustration of the monumental tomb just erected in the Cimetière de l'Est, Paris, to the joint memory of General Clement Thomas and General Lecomte, who, it will be remembered, were murdered on the 18th of March, 1871, in a moment of popular fury excited by the interference of the regular troops, under orders, with the will and pleasure of the gentlemen of the Garde Nationale. A week after it was decreed in the Assemblée Nationale that the event was "*un deuil public*," and that the only reparation possible should be now made to the memory of the two unfortunate men, by the erection of a monument at the public expense. The commission was entrusted to M. Coquart, whose work has just been completed.

The consideration of the particular form which a monument under such circumstances should take, occupies a considerable portion of the critical description given by M. Daly, the editor of the *Revue* (who, as most of our readers are aware, has made the subject of "*architecture funéraire*" one of his special studies), and is of some general interest in the principles of treatment which it suggests. The problem appears, in M. Daly's view, to have this speciality, that it is a monument erected by the country at large to the memory of two men unconnected with each other except in the incidents and simultaneous manner of their death, and of whom, though they perished under the same catastrophe, one lost his life in the execution of military duty, while the other was simply "*un malheureux assassiné*"; General Lecomte having been actually in charge of the troops whose mission excited the popular fury, while General Thomas was found in disguise near the spot, with no object that any one could explain.

The problem for the artist who was charged to design the monument in commemoration of the deplorable event and its victims had, therefore, as M. Daly states it, three distinct elements to combine in his work; the expression of the character and position of each of the two individuals, and that of the national protestation against the deed of which the monument was the result, and the artist might have endeavoured either to combine into one *ensemble* two tombs illustrating severally the personality of the two subjects; or he might have made it a "*tombeau du groupe*," emphasising whatever was common to the personality and circumstances of the two; or, finally, he might have made the character of a national monument predominant, almost effacing any personal reminiscence or characteristic.

The first-named principle, thinks M. Daly, would have involved the objection that the two persons commemorated,—one exclusively a soldier, the other a political partisan,—were too diverse in character to be personally commemorated in a double monument forming one *ensemble*,—there would have been too little parallelism between the two subdivisions. On the other hand, the second idea, of commemorating what was common to the personality and circumstances of the two men would have reduced the monument to the level merely of a "*manifestation générale contre les violences de la rue*." Accordingly, the artist chose the third method, of giving to the monument a national character, and just sufficiently defining the personality of its subjects. The result is an architectural grouping, in which the surbase is formed by two broad heavy pilasters separated by a slight recess, each bearing the name of one of the two murdered generals; under that of Lecomte, who suffered in discharge of his duty, is sculptured a laurel crown, gilt. Above the pilasters a high conical block or *stele* rises, which unites the two and forms a single apex to the composition, and two palms, springing from the hollow between the pilasters, spread over the face of the *stele*, bending to either side over the two inscriptions.* Between and above the two pilasters rises a figure representing *France*, wounded herself, and stretching towards the tablet of Lecomte a sword, and towards that of Thomas a civic wreath, the emblems of military and civil eminence respectively.

* The introduction of the palm, intended, as our contemporary says, as the symbol of martyrdom, is surely a misuse of the real meaning of the emblem; though not more so than the constant misapplication of the term "martyr," which is often used as if it were synonymous with "victim." The palm might be suitable to the case of Lecomte, who died in the execution of his military duty; but the other unfortunate man was simply and purely a *victim*.

We have given the heads of our friend M. Daly's criticism, as it is rather suggestive in regard to the treatment of monuments generally, and the subject is one which well deserves more careful thought than is sometimes afforded by those who are called on to design monuments. We may add that the monument, an engraving of which is given in the *Revue*, is a rather fine and unusual conception well carried out, though we agree with the editor in thinking the outstretched sword with its point to the name of Lecomte is a little ambiguous as an expression of the artist's intention. It is something, however, to see an important monument which represents a distinct thought consistently carried out; a characteristic rare enough in modern designs of this class.

THE DISCOVERIES AT OLYMPIA.

THE *Reichs- und Staats-Anzeiger* publishes the second report of the excavations, including communications of the 30th of December ult., and of the 6th and 13th of January, 1876. The works have been continued with the same staff of workmen on the east and west sides. The fact seems to be that the finds begin where the black humus appears under a stratum of sand. The thickness of the latter is not everywhere the same. While at the place of discovery of the river god and the charioteer, it is over 6 ft., near the spot where Nice (Victoria) was brought to light it is nearly 10 ft. The same proportion has been observed in the western trench, it being, at a distance of eighty to ninety paces from the southern border of the temple, 9 ft., and some forty paces more to the south, already nearly 14 ft. The old ground of the temple seems, therefore, to have slightly sloped towards the Alpheios.

To the finds already known, it may be added that the whole triangular pedestal of Nice, consisting of five blocks, has made its appearance. A drawing of the figure sent in shows that the girdle was laid in of bronze; near it several pieces of bronze have been found, one of which is a fragment with leaf ornament. The reclining body of the river god is in its lower part enveloped in thick drapery; the raised upper body rests upon the left arm, while the cheek of the head bent to the side rests on in the palm of the right hand. The arms are broken; but the bearded head, which shows a meditative, mild expression, is to the smallest detail as fresh and free from injury as if it just had left the artist's hand. Below the figure there were numerous pieces of bronze, among which considerable gilded fragments of a round object, perhaps of a shield, have been found. The third figure, the so-called charioteer, over life-size, of excellent execution, is complete, excepting the head; it is in a crouching attitude, the left knee drawn up, and resting upon the right arm. The mantle falling from the left shoulder serves as support. The neglected state of the side turned away shows that the figure was placed to the right of Zeus, to the left of the beholder, consequently close in front of the horses. The surface is entirely free from fault, which is the case with all the other remnants of the eastern pediment; the attitude is natural and animated. The only find near the western pediment, after cleaning, has turned out to be the fragment of a violently-agitated man with chlamys, consequently one of the Lapithæ, in accordance with which the former statement ought to be corrected. The work shows strong effects of exposure.

Amongst the new finds on the east front is a male torso, found on the 29th of December. It is turned towards the right, extending both arms in an exerting attitude, and consequently probably the charioteer on the left side of Zeus (to the right of the beholder). The formation of the neck is of the same excellence and truth as in the other works, and is very striking. Another piece, found at the beginning of January, is the lower portion of a reclining male figure of life-size, extended from right to left, covered with drapery, and intended for a front view and high position. The statue, further, which in the first report is described as lying under the male torso, is more fully described in the recent one. It is a colossal female figure, broken in two pieces, in long classic drapery, corresponding on the whole to the celebrated Vesta Giustiani, only much more full of life and finer in its execution. The base probably belonging to it, circular in front, square behind, has been also found. The statue was placed with its back to a wall, and is an excellent specimen of classic severity. Head and arms are still wanting. Further guesses with regard to this work, probably dedicatory, must for the present be suspended, until fresh discoveries throw more light on it.

In deepening the western trench, several remnants of the Doric building already mentioned, as well as nine square bronze plates of different thicknesses, with the symbol of lightning and the name of Zeus, have been found. They may probably be weights (of 15, 30, and 60 drachmæ Attic weight). In the same neighbourhood, graves have again been met with, from which bronze arms and implements, small bells, as well as Roman and Greek coins and fragments of pottery with black varnish, have been extracted.

These are in their essentials the results of the last three weeks' work, from which time, besides Sundays, three Greek festivals and a rainy day must be deducted.

NOTES ON PLAN AS THE BASIS OF DESIGN.

ARCHITECTURAL ASSOCIATION.

THE ordinary general meeting of this Association on Friday, the 4th inst., was preceded by a special meeting for the consideration of the proposed new rule with regard to the affiliation of branch societies with the Association. In the course of the discussion, which occupied an hour, several amendments were suggested, and the further consideration of the matter was ultimately postponed until seven p.m. on Friday next, the 18th inst. We gave the text of the proposed new rule in the *Builder* a fortnight ago.

The following new members were elected, viz., Messrs. G. J. Tarver Good, F. N. Palmer, N. Bent, L. Younghusband, C. S. Kirkby, J. Dell, and A. R. G. Fenning. Ten other gentlemen were nominated for membership.

It was announced that the Association would to-day (Saturday) visit a new church now in course of erection from plans by Mr. Dollman at Stoke Newington, and also a (completed) church by Mr. Burges in the same neighbourhood.

Mr. H. H. Statham then read a paper entitled "Notes on Plan as the Basis of Design." He said:—My subject is a very large one; my paper unfortunately (or fortunately) a small one; indeed, entirely incommensurate with the subject, to which I have not had time to do any justice; and though fully intending to go more thoroughly into it, one thing after another has occurred to put off the consideration of the matter, and I find myself coming before you with only a few rough notes and some still rougher sketches. I may add, however, that though my remarks have been hurriedly put down, they have not been so hurriedly thought of, as the subject is one that has been in my mind, more or less, for some time past. The connexion between plan and what is commonly understood as "design" in a building may be considered in two different relations. We may consider the plan as the basis of the construction; and in this connexion a plan always does present itself, to the properly-constituted architectural mind, in its relation to the ultimate construction and covering in of the building. It is a space of a certain dimension and proportion to be roofed in, and while the general shape of the plan may in some measure determine the method of roofing, the latter must, in any consistent constructive style, have a great influence on the detailed arrangement of the plan and the disposition of piers and openings. This connexion between plan and roofing has, as we are all aware, been made more and more manifest in regard to the greatest of architectural styles, as it has been more and more studied; and those who have given most study to the problems of Mediæval vaulting have lately gone so far as to say that the whole design of the substructure of a Mediæval cathedral is in fact determined, in all its essentials, by the intended disposition of the vaulting, and that to properly study a building of this class we should regard the plan of the vaulting as the factor of the whole. Without undertaking to offer a decided opinion as to whether the Mediæval builders really thought out their designs on this principle, it may be observed in passing that if we accept the theory, it at least entirely disposes of the idea that these buildings arose by a sort of consentaneous inspiration, without the aid of any preparatory drawing, or even, as some people seem to think, of any fixed method among the workmen; since on this supposition the laying down some kind of diagram of the plan of the vaulting in the first instance must have been a *sine qua non*. At all events,

the intimate connexion between the vaulting system of a bay of a Gothic interior, and its plan and architectural detail, in all the best work, is what every one admits, and this connexion and constructive independence between plan and roofing is a ruling characteristic of all honest and consistent building. It is not, however, this division of the subject that I am proposing to speak of. This belongs especially to the science of architecture, and I only touch upon it here in passing, that it may not be supposed I have forgotten how important a part of the relation between plan and design this constructive connexion is. The few suggestions I wish to make this evening refer rather to architectural effect, or to architecture considered as the art of building effectively, impressively, and truthfully, on the basis of practical requirements. And the view which I take of it bears an especial reference to modern architecture. We are quite accustomed now to the idea of a marked line of demarcation in architectural history and principles at the period of the Renaissance, though I believe the general acceptance of this idea is not older than Mr. Fergusson's "Handbook," and that it is to him we are indebted for first clearly and unmistakably defining that great distinction of principle between præ-Renaissance and post-Renaissance architecture; the former always showing (except in some of the architecture of the Romans) a natural development of style from the process of the arrangement and construction of the building, without regard to precedent; and the latter being, in almost all its developments, an architecture formed in the first instance on precedents, and fitted to, rather than arising out of the plan and construction of the building. The existence of this distinction is regarded now as a truism. But there is another very marked and very general distinction between the conditions of ancient and modern architecture which seems to have been rather overlooked, and which has some bearing on, perhaps offers some excuse for, the form which architecture assumed at the Renaissance and subsequently. The distinction I refer to is this; that ancient architecture (by "ancient" I mean everything before the Renaissance) in all its most important productions took the form of buildings with one great apartment, open from floor to roof; while in the modern period few such buildings are erected, and the architect has generally to deal with the problem of combining a number of apartments in a certain relation to each other and in several tiers or stories, within one building. This tendency of modern architecture is in accordance with that of society. Ancient architecture, in its most striking forms, was almost always the work of a *caste* (not using the word in any offensive sense), sometimes a regal, sometimes a religious caste, and the art of building was employed emphatically for splendour and effect, and its productions were marked by unity of design, as the expression of some one predominant motive. Modern architecture is much more that of society at large, and tends to become more and more so as society becomes less feudal and more federal; and as it has no longer one single predominating idea to fulfil, but has to provide for many and increasingly numerous and varying practical wants, it tends more and more to lose this unity of character and to become multifarious. The typical large Mediæval building is the cathedral; the typical large modern buildings are the Houses of Parliament or the Law Courts, or, to put it more generally, the class of edifice now so largely built under the name of "Town Hall" or "Municipal Buildings." The Mediæval Abbey was, it is true, an erection of the multifarious order, but it was simple in arrangement, and was in fact a collection of buildings nearly distinct both internally and externally. But the problem of combining a number of apartments and classes of apartments in what is externally treated as one edifice is almost peculiar to modern architecture. Of course, this important change in the requirements and nature of our largest buildings very much alters the nature of the architect's work, and renders his profession a great deal more utilitarian than it used to be, especially as regards internal effect. We cannot produce the same grand or impressive effect in a building cut up vertically into floors, and horizontally into passages and suites of rooms, that can be obtained with a great apartment open to the roof and in one area, like a basilica or a cathedral. But if the modern architect's problem is thus shorn of some of its artistic interest, it has a kind of compensation in the increased demand made upon his practical and logical sense in the arrangement of the building, and in the relation which that arrangement bears to its external treatment and expression. The first desideratum, of course, in planning a building is, that every part should be in the most convenient position and relation for carrying on the internal traffic of the building. It is further desirable not only that the arrangement should be found on trial convenient, but that it should appear so at a first entry on the scene; that the plan should not be needlessly involved in the effort to provide intercommunication wherever it is required; but that it should have a leading principle at once apparent to the visitor, and main centres or starting-points from which the leading lines of the plan can be perceived, and to which they are subordinate. To do this well, on the purely practical ground only, often requires no little trouble and study. Large buildings, public or private, where this is neglected, sometimes almost suggest the idea of a rabbit-warren in their tortuous sinuosities of thoroughfare. It is on this point in particular that amateur architects generally fail, while imagining that they are evincing a remarkable amount of common sense in putting walls and passages, as they say, "where they are necessary," and not, like those foolish people, the professional architects, the slaves of precedent, who place their walls by a rule, and quite independent of utility. The fact, of course, is that the architect, if he understands his business, keeps the details of his plan subordinate to a general scheme, both of plan and construction. So far we are, however, on purely practical ground. But what we have a right to expect further from the architect, as the master-mind of the whole building, is that he shall combine *effect* with convenience and clearness in his plan; that he shall be able, whilst arranging his building upon a good working system, also to contrive in it points of effect, of vista, or of surprise perhaps for the visitor,—points which, however, not only must not interfere with the main practical idea of the plan, but which must appear to arise naturally out of it; and, whatever study and contrivance have been necessary to attain this object, must not *appear* too much "contrived." In planning it may be said emphatically, *ars est celare artem*; and in general it will be found that those plans which appear so simple and natural in their arrangement that it scarcely seems as if the problem could have had any other treatment, are just those over which the most consideration has been expended. Scarcely any part of an architect's business can, as it seems to me, be more interesting than this; and I hope it will not be thought censorious to say that perhaps scarcely any among the important problems of designing buildings is more often neglected, or, at all events, is more seldom satisfactorily solved. We have certainly got beyond the practice of the architects of the Vanbrugh school, who simply put together an imposing exterior of perfect symmetry, and then let the plan take its chance. But still, if you look, for instance, through modern competition drawings for large buildings, you are sure to find a quantity of fine and effective drawing, a certain proportion of picturesque design and detail, but it is a comparative rarity to find a plan which combines convenience and fitness with architectural point and effect. Next to this, and as the completion of the whole thought of the architect, we should expect to find the external design of the building and its main architectural features coincident with those of the plan, and, in fact, expressing and growing out of them. And these conditions ought to be fulfilled in every work which claims to be in the highest sense architectural in its structure and design. This is particularly what I wished to urge in reference to this subject,—that a fine and effective, and at the same time practical, plan is in reality not only the necessary basis of a good design, but is itself an important element of design; that it has an intellectual and æsthetic interest beyond its mere practical importance; that if you have a fine plan it is a difficult thing to really spoil it even by bad detail (though, no doubt, a determined operator may accomplish a great deal in that way); and if, on the other hand, you have an ineffective and ill-arranged plan, good treatment of ornamental detail will not atone for this initial deficiency. And what is required is not merely that the design should agree with the plan, as if added or formed afterwards, but that the two elements should grow up together in the architect's mind, that they should interpenetrate, so to speak, and the whole arrangement and aspect of the building be part of one whole and distinct scheme; the architect, in place of arranging the plan first, and then considering how it could be treated, should see the design in his mind's eye as he forms the plan. When regarded in this way, design (in the ordinary sense of the word) and plan mutually act upon each other. A particular point, arising out of the arrangement of the plan, suggests a corresponding feature in the design; and conversely, the importance or prominence of one special angle of the site, perhaps, in connexion with the surrounding streets or buildings, stamps it as the key of the position, and leads to the concentration of the main point of the plan on that portion of the site. In this respect sites are often exceedingly suggestive in regard to the architectural treament of the building which is to occupy them; and nothing is more indicative of the true architectural spirit than a quickness to perceive and turn to account a salient point in the site of an intended building. It may be observed that this ground of suggestion in design seems also to be much overlooked, and that in competition sets, again (which are not bad barometers in this way), it will often appear that many of the competing architects have either not seen the site, or have quite failed to appreciate what a once eminent auctioneer would have called its "capabilities." The perfect result is when the plan and design of the building appear to have arisen naturally out of the circumstances of the site, and yet to accommodate themselves to each other and to the practical uses of the building, with both convenience and striking effect. This fortunate combination is hardly common, but we are not without some admirable examples of it. I have here some memoranda (for I can hardly dignify them by any higher title) of a few plans which serve to illustrate some of the points in connexion with the subject. The first I will refer to is a plan of a residence, or so-called "castle," in Mecklenburg, by a modern German architect, which illustrates a good point in a plan spoiled by not being thoroughly and consistently carried out. It may be observed here that as regards effective planning, especially in private residences (though the one referred to is not a fortunate example), German architects as a rule show a great deal of originality and ability, and that a book of plans of this kind by a German architect is generally worth attention, if only to "crib" from. They do not confine themselves nearly so much to stereotyped arrangements as we do; they seem to be frequently trying new combinations, and have a great eye to internal effects in planning. As far as I can judge, they seem, however, commonly to do their best to spoil the plan by its architectural clothing; and indeed, what the modern Teuton architect, *pur sang*, is capable of when he gets to his Gothic could hardly be adequately characterised in any language which it would be at all proper to use here. [Reference was here made to a plan and perspective view of a mansion (from a published work) in which the good point of the plan,—the arrangement of a series of reception-rooms and winter-garden *en suite*,—was spoiled in effect by the loss of the vista through the neglect of alignment and centralising of the openings, while the design contradicted any idea of this part of the building forming one suite. A re-adjustment of the plan was shown, and a sketch illustrating the manner in which the arrangement of the reception-rooms *en suite* might be expressed in the external design, and form a marked feature in it, by uniting all this portion of the building under one "ordinance." An effective plan for two semi-detached street houses, by the same architect, was exhibited.] I will now ask you to consider for a moment the merits of three of the finest examples that I know of in modern planning. Every one here is of course familiar with the plan of the Houses of Parliament. Sir Charles Barry's great work is a remarkably good example both of what may be called generalisation in planning, and of illustration of the main points of the plan in the external design. The great point of this building internally consists in the arrangement of the two main corridors crossing each other, and meeting in the centre octagon. It looks very simple, but in its simplicity is one of its great merits; and while the octagon with the corridors diverging from it is an exceedingly effective feature, it is also precisely in keeping with the requirements and business traffic of the building. The cross corridor furnishes the main connexion between the public entrance and the inner business portions of the building; the longitudinal corridor affords a special passage to each of the two

Houses; while the centre octagon furnishes a neutral meeting-ground for members of the two Houses and for members and the public. The emphasis thus given to the centre point gives a remarkable unity and directness of arrangement to the whole; you can always tell where you are, because everything in the lines of the thoroughfare refers to a central point. Externally, of course, the great feature is the tower which marks the royal entrance; but an equally good incident of the design, and equally arising out of the plan, is the light lantern of the octagon, which at once marks the central point of the plan, and furnishes a fortunate contrast, with its light and graceful outline, to the flanking masses of the two towers. These towers are placed at the extreme points of the building, and thus at once, and from a distance, indicates its extent; this is an important point, and no doubt intended with that object. As a specimen of fine and effective grouping of architectural design on a great scale, arising entirely and directly out of the features of the plan, it is my impression that there are very few things to surpass the Westminster Palace, and nothing could have been more irrational and absurd (if regarded even on critical grounds only) than the attempt which was made a few years ago to deprive its architect of the credit of being what was called the "art-architect" of the building. I refer to this unfortunate affair because it bears upon my point, which is, that the plan, and the illustration of it externally by the leading features of the design, are in themselves the highest art-feature of the building, and that the detail, whoever is to be credited with it, is a comparatively secondary matter. Externally the detail is not, I think, the best thing in the building, though its shortcomings are partly inherent in the style selected; but the leading idea, and that which stamps the architect of the building as a man of genius, is the arrangement of the plan and the proportion, position, and outline of the leading features in the external design. Mr. Fergusson, in his "History of Modern Architecture," makes what also seems to me a very strange criticism on the plan: after remarking (I think with truth) that the principle of symmetry was carried too far in making the Speaker's residence and the house of the Black Rod exact counterparts to one another, and of the same ordinance as the committee-rooms between, he observes,—"But having gone so far, this symmetry should have been carried out in all parts of the building, and it was unpardonable to adopt three towers of such different design as those which form the principal features of the structure, and to arrange them so unsymmetrically as he has done." Are we to understand that Mr. Fergusson would really have preferred that there should have been two Victoria Towers, one an exact counterpart of the other, instead of the two which form such a picturesque contrast now? And as to their unsymmetrical position, it is that very thing which varies the grouping and composition from different points of view so continually, and forms one of its great charms; and it is vexatious that a critic of Mr. Fergusson's calibre should have left on record such a depreciation of our greatest modern architectural work (for such Barry's building unquestionably is), founded on what most students of architectural effect would certainly consider to be among its chief claims to admiration. [Reference was made also to the admirable internal effect of the plan (sketched on the black-board) of the Manchester Royal Institution, an early building of Sir Charles Barry's, where the suites of rooms in each wing were connected with the gallery of the centre hall and staircase by low colonnaded sculpture-galleries, arranged so as to secure a vista right through. Mr. Statham then directed attention to the plan of the new Manchester Town-hall, by Mr. Waterhouse. Perhaps only those who had competed in the preliminary sketch competition, and endeavoured to realise the exacting demands of the "Instructions," in regard to the grouping and arrangement of all the departments in certain specified relations to one another, could fully appreciate the merits of this plan, in which the grouping of all these apartments on a most irregular site was reduced to perfect order and symmetry, and made subservient to remarkably picturesque interior effect, with a success that was really surprising. This was an illustration of the point that had been urged, that plan was an important element in architectural effect; for however the exterior of this building might be admired, probably every competent critic would agree that the incontestable triumph of its architect lay in the plan. The third of the leading illustrations referred to was the plan submitted in competition for the Birmingham Municipal Buildings by Mr. Lynn, an eminent architect of the sister isle. This was represented, when the competition drawings were publicly exhibited, by merely two or three hasty and half-finished drawings (the author of it having been interrupted, as he explained, by the intervention of other work), but the architectural power and grasp of the problem, as a whole, at once asserted itself, in spite of this disadvantage. Although the whole plan was disposed on the most symmetrical and what might be called stately method, yet it would be found that every room was in its right place, every thoroughfare had its proper relation to the business of the building; there really was hardly a weak point in it.* But the master-stroke in connexion with the design was that its author perceived that by a slight alteration of the lines of the site, it could be combined architecturally with the adjoining town-hall, the state suite of rooms being connected with the public hall by a bridge, and the architectural ordinance of the latter carried throughout the new building so as to make one great whole. This, which was a grand idea, resulted in putting the design out of court, on the technical ground of a transgression of the instructions; any other decision would have been unfair to the other competitors; but it was one delightful result of the competition system that an architect of genius might thus hit upon a great and perfectly practicable idea, only to find that the promoters of the building had tied their hands beforehand from accepting it.] In regard to the external treatment of a building in reference to the plan, it is sometimes a question of some difficulty how far one is to lay aside all demands of symmetry of external arrangement, when the internal arrangement is by necessity totally unsymmetrical. In such a case as when two wings of a building, for instance, are occupied, the one by show or state apartments, and the other by business rooms in much smaller and more numerous subdivisions, and probably occupying two stories to one of the other, I think there can be no question whatever that to treat two wings symmetrically and mask the smaller subdivisions behind an architectural screen, is simply an absurdity; I cannot see any use in architects or architecture at all if that kind of thing is to be encouraged; and although probably we all think pretty nearly alike on that point here, still this absurdity is carried out continually even now in buildings on which many thousands are spent. The difficulty in regard to this point is, of course, much less in architecture put together on Gothic principles, than in what is generally termed Classic. But it may, perhaps, be said that the principles of either class of design are sometimes pushed a little too far. On the side of Gothic the unsymmetrical taste is often carried to an extreme, as if the object were studiously to avoid any correspondence between any two portions of the building. When the competition for the new Law Courts was still pending, an able letter was written in some public paper,—I forget which,—arguing that the whole system of making one great building out of the courts was a mistake; that they ought simply to be so many small buildings, each representing a single court, grouped together; and that this would have been the true Mediæval way of carrying it out. I am not sure that that last remark is not correct, and that the Mediæval system would have been to group them as separate buildings; but I would not rashly say that it was therefore the best one. On the contrary, to follow out this scheme in such a case would, as it seems to me, be to throw aside an opportunity for producing a great and impressive building, and to shirk one of the most difficult and at the same time most interesting of architectural problems. On the other hand, there is really no reason why buildings in the manner we agree to call Classic should not have more play and variety in treatment than is often allowed them, without by any means losing their characteristic style and feeling. The most generally applicable method of combining external symmetry with the expression of variety in planning, is to make the masses of the building symmetrical, and vary the details, such as ornament and fenestration; and this principle will be found just as applicable to Gothic as to Classic building. There is one consideration in reference to the subject on which I have ventured to offer these very superficial and hasty remarks, which at least ought to encourage the young architect to give his time and attention to it. Some of us not infrequently feel quite uncertain and bewildered between the various succeeding fashions of architectural design which court our notice and that of the public as to which is worth attention and which is not, which will retain its hold on public taste or critical judgment, and which is a mere passing whim. Now among all these vagaries and changes of architectural fashion, *plan* is what engineers call a "constant." However the fashion may change, from Gothic to Queen Anne, from Queen Anne to Early Irish, or from Early Irish to Mexican, as the field of the sketcher and copyist gets extended, the requirements and principles which govern good planning are always the same, until the whole habits of society change. As things are now, we can rarely feel secure that a design which for the present satisfies us and our neighbours in its style and ornamentation will continue to give the same satisfaction in later years; and most architects advanced in practice will say that they have little admiration now for the architectural style of their earlier works. But a good plan is a safe investment of mental capital, and a production to which the author of it can always return with satisfaction.

In the discussion which followed,

Mr. H. L. Florence, in proposing a vote of thanks to Mr. Statham, agreed that not only was much to be learnt from German architects on the subject of planning, but from French and Italian architects also. In many houses in Italy the one architectural feature was the staircase, which was generally almost ignored in this country except in buildings of the first magnitude.

Mr. W. H. White seconded the motion, which was supported by Mr. Clarkson, Mr. Aston Webb, and Mr. Sulman, the latter speaker remarking that the main purport of Mr. Statham's paper was to urge the importance of getting leading lines in plans, for without such leading lines good plans could not be produced. Good plans, indeed, would never be produced unless they were studied, so to speak, from an art point of view, just as the successful points in an elevation were studied.

The President, in putting the motion, urged the members to avail themselves of the opportunities offered by such buildings as the Houses of Parliament for the study of plan in design; and

Mr. Statham having said a few words in reply, the meeting terminated.

* This plan was given in the *Builder* for Sept. 2, 1871, along with the report upon it by Mr. Waterhouse, who acted as professional assessor on the occasion. It may be interesting, in connexion with the subject, to notice this report of one master of planning upon the work of another.

THE POPULATION, NUMBER OF INHABITED HOUSES, AND ACREAGE OF ENGLAND AND WALES.

AN interesting Parliamentary return has just been published, showing, amongst other things, the number of inhabited houses and the population for each county in England and Wales in 1871, exclusive of the metropolis; also the number of owners of land below one acre, the number of owners of one acre and upwards, the extent of lands, and likewise the estimated extent of commons and waste lands. From this return it appears that the total population of England in 1871, exclusive of the metropolis, was 18,240,874, and the number of inhabited houses 3,592,020. The number of owners of land below an acre is returned as 671,667, and the number owning an acre and upwards 249,649, the total number of owners being 921,316, representing an ownership of 29,179,622 acres, whilst the waste lands and commons are estimated at 1,197,676 acres. Exclusive of the metropolitan area, the county of Middlesex stands low on the list, the number of inhabited houses being 44,383, with a population of 253,197. The number of owners of land below an acre is 9,006, and the number of owners of an acre and upwards 2,875; total number of owners, 11,881, owning 143,014 acres, whilst the waste lands and commons are estimated at 2,592 acres. Lancashire, in 1871, contained more inhabited houses than any other county in England, although Yorkshire is nearly four times its area, covering a little more than 4,000,000 acres, as compared with 1,011,770 acres the area of Lancashire, notwithstanding which the number of inhabited houses in the last-named county in 1871 was 530,490, and its population 2,819,495, whilst at the same period Yorkshire contained 507,040 inhabited houses

with a population of 2,436,355. The number of owners of land below an acre in Lancashire is 76,177; one acre and upwards, 12,558; total number of owners, 88,735. In Yorkshire, the owners of land are respectively 84,623 and 28,179; total number of owners, 115,802. Of the acreage of the two counties, the estimated waste lands and commons in Lancashire is 64,306 acres, and in Yorkshire 350,460 acres, of which no less than 247,409 acres are in the North Riding. The gross estimated rental of the 947,464 acres of land in Lancashire (excluding waste lands) is 13,878,277*l.*; whilst the estimated rental of the 3,256,505 acres in Yorkshire (also excluding waste lands) is 12,073,980, showing the average annual value of the lands in Lancashire to be about 15*l.* per acre, whilst the average annual value of those in Yorkshire does not reach 4*l.* per acre. The counties standing next in order to Lancashire and Yorkshire, as regards population and number of inhabited houses are respectively Staffordshire, Warwickshire, Durham, Cheshire, Devonshire, and Gloucestershire. The population of Staffordshire is returned at 858,326, and its number of inhabited houses 167,614; Warwickshire, population, 634,189,—inhabited houses, 131,442; Durham, population, 685,089,—inhabited houses, 114,705; Kent (exclusive of the metropolis), population, 630,127,—inhabited houses, 117,388; Devonshire, population, 601,374,—inhabited houses, 105,200; Cheshire, population, 561,201,—inhabited houses, 110,449; and Gloucestershire, population, 534,640,—inhabited houses, 101,474. The three English counties having the smallest population and number of inhabited houses are Westmoreland, Huntingdonshire, and Rutlandshire, Westmoreland, being returned as having a population of 65,010, and 12,671 inhabited houses; Huntingdon, population, 63,708,—inhabited houses, 14,032; and Rutlandshire, population, 22,073,—inhabited houses, 4,766. The returns in respect to some of the counties show a large extent of waste lands and commons in proportion to the acreage, Westmoreland, out of an area of 450,000 acres, having 114,282 acres of waste lands; Cumberland, with an aggregate of 894,000 acres, of which, 114,025 are waste lands; and Cornwall, 70,968 acres of waste lands out of an aggregate of 830,000 acres. Some of the other counties, on the contrary, show an almost entire absence of these waste lands, Northampton having only 255 acres, out of 593,000 acres; Leicester, 519,500 acres,—waste lands, 298 acres; and Huntingdon, 225,860 acres,—waste lands, 796 acres. The returns give Wales an aggregate population, in 1871, of 1,217,135, and 249,334 inhabited houses, with an area of 4,160,860 acres, 326,972 acres consisting of waste lands and commons. The population and inhabited houses in Glamorganshire amount to about one-fourth of the whole principality, being respectively 397,859 and 72,905. More than one-fourth of the acreage of Brecknockshire consists of waste lands and commons, the entire area being 417,000 acres, and the waste lands, 115,107 acres.

GUILDFORD AND THE RIVER.

ONE hour's ride from Waterloo will take the Metropolitan, as it took me, to Guildford. This is at the present moment one of the most flourishing towns in England; the scenery is charming and the atmosphere exhilarating. Built upon the declivities of a gorge in a range of chalk hills, locally termed the "Hog's Back," through which the arcadian river Wey meanders, the town has a picturesque appearance that can scarcely be excelled. The country hereabouts is of deep interest to the geologist. On the south-east side of the range two periods in the Wealden formation contribute to the beauty of the locality; high hills, formed of a brittle sandstone, extensively used for building purposes, succeed each other to the south, whilst many coloured sandy elevations trend towards the east. The whole country is covered with luxuriant vegetation, from the umbrageous elm to the odoriferous violet, and animal life, from the largest English mammalia to the lovely lepidoptera, abounds, and the lords of creation have appropriated some of the most gem-like spots for their habitation. To the north and west stretches the tertiary formation composed chiefly of Bagshot sand, but some extensive beds of clay exist, which make excellent bricks of a bright red colour, and there is no doubt lighter bricks might be made by mixing chalk with it. Bountiful crops are gathered from the farms that occupy the district, and hops flourish to the westward; in fine, a more delightful country to be located in does not exist in the same latitude.

The town itself is not devoid of interest; it is evidently ancient, for there are several Early English ruins about: that upon the summit of St. Catherine's Hill has a very weird appearance as it towers high above the silvery Wey. The High-street is a fine one, and is very wide and scrupulously clean. It is full of fine shops, and near the top is situated the Grammar School, erected in the reign of Edward VI., apparently of an oolite stone. The almshouses, of the seventeenth century, are built of brick; these surround a large quadrangle entered by a massive pair of oak gates, which are flanked by a pair of octagonal towers. There are also in this street a Georgian council-chamber and a Doric-fronted corn-exchange, and at the bottom of the street a church is in course of erection under the superintendence of Mr. Christian. There is nothing very elaborate in it except the groined apsidal chancel; the style is Early English, and the materials Bargate (local) stone, with Bath stone dressings, and the side aisle is roofed in a peculiar manner, the plates and ridges being at right angles with the nave, the whole being hidden by a high parapet.

In the minor streets may be found the modern public buildings. These are the public hall, the post-office, cattle-market, and a chapel. Several neat villas are rising up in the picturesque suburbs, and the Government are themselves erecting extensive barracks. Altogether there is an air of prosperity about the place which is refreshing; there is, however, one drawback, and a very serious one. The water of the river which winds through verdant meadows, such as we see on the canvas of Claude and Salvator, and read about in Goldsmith, is polluted by the whole sewerage of the town, and of course this ultimately finds its way into the Thames and the teapot of the unsuspecting Londoner, so that if the otherwise blessed Guildfordite does not speedily divert his foulness into some less objectionable channel, the aforesaid Londoner will know the reason why. The stream is very sluggish, so that the offender himself inhales the bulk of the noxious vapours generated by thus outraging the crystal stream, whose banks are much patronised by pensive maidens "all forlorn," mottled cows "with crumpled horns," patient anglers "all tattered and torn," and chanticleers which crow "in the morn." The next time I visit Guildford I hope to see all this altered; for, to say nothing about offended olfactory organs, there is the danger of being attacked by one of the zymotic diseases that have no doubt already sent many little corpses into the pretty cemetery on the Hog's Back. GARGOYLE.

THE CLOSING OF PICCADILLY.

THE St. George's, Hanover-square, Vestry having decided to lay down wood pavement in Piccadilly, have applied to the Metropolitan Board of Works to close it for the purpose of carrying out the works. The Board will not permit this important thoroughfare to be closed altogether, but have agreed, under certain conditions, to its being stopped up longitudinally. The Board object to its being stopped up during "the season" which they assume to commence about the 1st of May. The Vestry are to have power to close it until after September, which arrangement would admit of the work of laying down the pavement being commenced at the close of the summer season, but it appears that the Vestry are about to make an effort to have the work completed before May, and have commenced.

TRENT MANOR HOUSE, SOMERSET.

ALTERATIONS and additions are in progress to this very interesting old house,—interesting not only for its architecture, but for its historical associations; for in a space between the ceiling and the floor Charles II. was hidden by Lady Wyndham from the search of the Parliamentary troops. This place of concealment is of course left undisturbed, and a separate staircase is provided for the convenience of visitors by the owner, Mr. H. Danby Seymour.

Portions of the house are of the fifteenth century, and there are evidences that much work of this date has been pulled down. Here are also portions of Elizabethan and Jacobean dates. These are being repaired and re-fitted with new oak fittings. The new work follows the Elizabethan type, with square mullioned and transomed windows, and consists of entrance-hall, porch, picture-gallery, bedrooms, and completely new offices. The walls are of local stone, with Ham-hill stone dressings. The works are being carried out by Mr. Bateman, of Sherborne, under Mr. R. Herbert Carpenter and Mr. Benjamin Ingelow (who has recently become Mr. Carpenter's partner). The village of Trent is full of ancient houses, some of great beauty and interest, and in one is an exquisitely ornamented plaster ceiling of Jacobean date. There is a chantry chapel belonging to the manor-house, attached to the church, in which are some very fine recumbent figures. This chapel was restored some years ago by Mr. Seymour to his father's memory, under the direction of Messrs. Slater & Carpenter.

LONDON STREET ARCHITECTURE: CHANDOS-STREET.

THE warehouse erected for Messrs. Benham & Froud, coppersmiths and general metal-workers, and just completed, has a frontage to Chandos-street of 50 ft., and a depth of nearly 80 ft., and consists of a basement-floor, ground-floor, mezzanine, and four floors over. It stands upon the site of the premises which have been in the occupation of the firm and their predecessors, Messrs. Kepp, for nearly a century, and which were destroyed by fire in the year 1874. Amongst other large works executed in copper here may be mentioned the present ball and cross of St. Paul's Cathedral, 22 ft. in height, which were made upon the premises in the year 1822, under the direction of the late Professor Cockerell, to replace the original one put up by Sir Christopher Wren.

The style of the exterior of the new building is Italian, adapted to suit the requirements of a warehouse. The ground-story order is upwards of 20 ft. high, and has a finely-axed grey granite dado, polished red granite pilasters, with Sicilian marble caps and bases, and a Portland stone cornice; the entrance doorway is also of Portland stone, in which some carving has been introduced. The upper portion of the elevation is constructed in projecting piers of red brick, with horizontal bands of light grey tiles 3 in. deep every third course, and carved stone panels at each floor, some of which are of bold design. The recessed window-jambs are of white brick, with carved stone capitals, and have a double set-off, giving relief from the red brick piers. The panels under the windows are of white moulded bricks. The circular arches over the windows of the third floor are of purple brick, with double set-off, in which white bricks have been introduced. Above these arches is a cornice in Portland stone. In the piers to the top story Pether's bricks have been used, above which is a cornice in stone and moulded bricks. The roof is covered with purple brown plain tiles, and circular-headed dormers have been introduced.

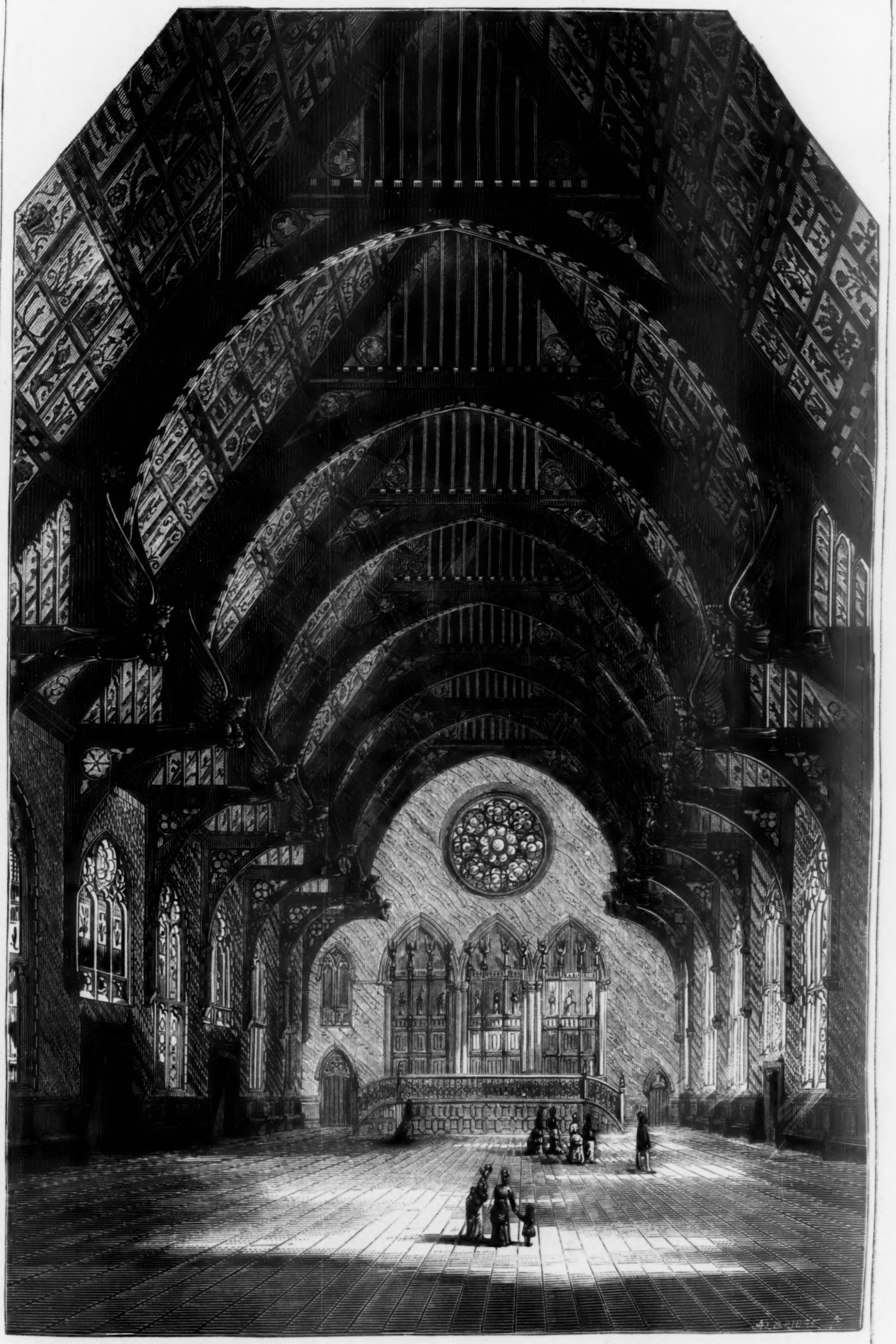
Interiorly the floors are lighted from the centre by a well, with large sky-light above the mezzanine floor. The floors are supported by plate girders and rolled joists, and the four upper floors are carried upon iron girders and columns, thus leaving the three lower floors clear, with the exception of a few columns. The soffits of the floors and joists are wrought and varnished. There are a principal staircase, lift, and men's stairs. The basement floor is covered with Val de Travers asphalte. The modelling and carving were executed by Messrs. Mabey, of Westminster.

The building is connected, on two floors, with a factory in the rear, consisting of four floors about 130 ft. long by 30 ft. wide, occupying one side of Taylor's buildings, and erected for Messrs. Benham & Froud last year.

The architects are Messrs. Chadwick & Sons.

Liverpool Academy of Arts.—It is stated that an exhibition of the works of the past and present members of this academy will be shortly held at the rooms of the Art Club in Sugnall-street, which have been lent for the purpose. The exhibition is expected to be especially interesting, as showing the different phases through which art in Liverpool has passed from the founding of the academy in 1810. The academy, which was reconstituted some years ago, now numbers more members than at any former period of its career. Though it has held no exhibition for some years, the Free Art Schools are still maintained.

LONDON STREET ARCHITECTURE: WAREHOUSE, CHANDOS STREET.——Messrs. Chadwick & Sons, Architects



INTERIOR OF ROCHDALE TOWNHALL.——MR. CROSSLAND, ARCHITECT.

INTERIOR OF ROCHDALE TOWN HALL.

THE interior of Rochdale town-hall is very elaborately decorated, and we give a view of it. The extreme length, exclusive of the orchestra, is 90 ft., and the breadth 57 ft. 6 in.; the height from floor to apex is 68 ft. It is calculated to seat 1,200 people, and is used for public meetings, balls, concerts, and so on. There are seven different ways of egress from the hall that can be used in case of fire or other alarm.

The principal carving consists of sixteen large figures of angels, holding gas-pendants, forming the finish of the hammer-beam. The arcade at the west end of the hall is enriched by some delicate running foliage, consisting of vine, thorn, and oak leaves. The two circular windows in the gables are decorated with ball-flowers. The labels round the hall are terminated into heads of prominent male and female characters of the fourteenth century.

The roof timbers and panels are decorated in gold and colours. The several arms, badges, and legends of England, Ireland, and Scotland, are painted in black, red, and white, in the panels, and the seven principals are decorated with the red rose-tree of the House of Lancaster. The gold soffits of the principals give lightness and brilliance to the roof, and the livery colours of the Queen, blue and red, form an ornamental string-course of the wall-plate.

The walls, the mouldings, and the jambs of the windows are covered with a diaper painted in black and Indian red colours. The principal feature in the hall is the series of windows filled with figures, in stained glass, of the kings and queens of England. The figures are under canopies on quarry grounds, painted with the initials and badges of the sovereigns, excepting the parts underneath the canopies and above the screen, which are left perfectly plain. The series commences with William the Conqueror and ends with William IV. The figure of Cromwell, in subdued colours, stands between those of the first and second Charles.

The lights above the sovereigns are filled with their armorial bearings, commencing with the doubtful two-lion shield of William I. Henry II. has three lions on his shield,—the same shield of England that has continued up to this day. Henry II. at first bore the two lions, but on his marriage with Eleanor of Aquitaine, who had but one lion on her shield, the two shields merged into one of three lions. The badges of the sovereigns, or rather of the different Royal Houses, are shown in the tracery of the windows. The broom plant of the Plantagenets commences the series and is followed by the red rose, antelope, and chained swan of Lancaster; the white rose, falcon, and fetterlock of York; and the red and white rose and portcullis of the Tudors. The red and white rose, shamrock, and thistle come next. These have been the badges of Great Britain until the present day. The figure of our present sovereign is in the centre of the circular window over the organ-chamber. She, as the fountain of honour, is surrounded by the collars and badges of the different orders of knighthood, the Order of the Garter, the Bath, the Thistle, Star of India, &c. Facing this window at the other end of the hall is a similar window, in which the portrait of Prince Albert is introduced.

In the quatrefoils surrounding the Prince are figures emblematic of painting, sculpture, science, architecture, commerce, manufacture, and agriculture.

Underneath the Prince Albert window is a large subject painted by Mr. Holiday, representing the Council at Runnymede, at which were discussed the terms of the "Magna Charta." On the dexter side of this large painting is a panel to balance with the window and the door on the other side to prevent the subject presenting a one-sided appearance. A conventional chesnut-tree is painted in the panel, and from the branches hang the shields of the conservators of the Magna Charta, their names being written on scrolls adjoining the shields. On a conventional curtain are the arms of the Queen, whose portrait is in the window above, and at the sides are the badges of Ireland and Scotland united with the rose of England.

The walls are finished by a fine oak dado, with drapery panels, and fitted with seats and elbows all round. In the west end of the hall is a carved platform, the front of which is filled in with brass balustrading. The floor is laid with Dantzic oak in narrow widths, dowelled, glued, and skew-nailed.

The hall was erected from the designs of Mr. Crossland, architect, and a view of the exterior and plan of the ground-floor will be found in our volume for 1866.*

ARTISANS' DWELLINGS IN THE PROVINCES.

NORTHERN ARCHITECTURAL ASSOCIATION.

THE annual meeting of the Northern Architectural Association was held on Tuesday evening, the 1st inst., in the Old Castle, Newcastle, Mr. John Johnstone presiding. The President, in the course of his address, said:—The Artisans' and Labourers' Dwellings Act having now become law, the subject of how this is to be carried into effect practically is one of absorbing interest at the present time. The future of the dwellings and lodgings of this country becomes a feature full of hope in contemplating the protection it will give to the public from speculators and not too scrupulous builders and avaricious landlords. From the building and sanitary control vested in corporate bodies and boards (if judiciously applied), great improvements must proceed, affecting more particularly that class of the community,—I mean the "working classes,"—who, in this respect, have not within themselves the means of self-assistance, or even protection. To thoroughly fulfil the purpose of the erection of the dwellings, it is of the utmost importance that the site should be selected with all the care possible, a knowledge of the neighbourhood, the people, their wants, and means, being indispensable to this end. In the majority of cases it is undoubtedly better to have the buildings contiguous to great centres of labour and manufacture, otherwise the inconvenience to the tenants which must ensue must be considerable. It must be admitted, however, that in these days of rapid and cheap transit the suburban system has, not without show of reason, many advocates; yet, even with every facility that can be given in the way of travelling, the working man must of necessity have greater chances of comfort when the workshop and dwelling are adjacent to each other. It would be quite out of place here to describe at length the several systems upon which industrial dwellings are generally designed. Three different systems at least have been adopted with varied success. They may be characterised as the "self-contained cottage system," the "isolated block system," and the "community system"; but there are exceptional buildings which cannot be classed under these heads. It is worthy of remark that, in many instances, a great deal has been effected at a moderate cost of old dilapidated structures being remodelled and converted into spacious and healthy dwellings. This is a means which should not be lost sight of where its adoption is possible. The industrial dwellings at the Garth Heads belong to what is termed the "isolated block system," and have been found to answer the purpose well. It has been said, out of doors, that in erecting buildings of this class, architects should be in the van. An opportunity has now occurred for the profession to show whether we can do so or not; it will be our own fault should it be found we are wanting in that respect. The Building Bye-laws Act of the town is, in some cases, an anomaly as it now stands. Capitalists are afraid to enter into building operations on account of the stringency of the Act, or rather the interpretation of it, as applied to not only open spaces behind buildings, but also at the front and wings of the same; there are other matters relative to the Act which press unequally, and which ought, under certain circumstances, to be relaxed. Suffice it, there will be no change or alleviation of these grievances until some decisive action is taken on the part of the public, and a case removed to a higher court in a friendly way, to be there thoroughly tested. It appears there are upwards of 200 corporations and local boards who have introduced various and conflicting regulations, involving great uncertainty and much trouble to architects practising in the country. It surely is not impracticable to frame one Building Act sufficiently broad and comprehensive to meet the various conditions of materials and local customs, and elastic enough to admit of the introduction of novel materials or of improved modes of construction.

Mr. Kyle stated that there was one point that he would ask the profession to consider, and that was the advisability of assisting the Town Improvement Committee to obtain a stringent bye-law which would have in view the providing of more healthy dwellings for the working classes. He did not see how they were to have healthy dwellings unless there were a bye-law to the effect that no buildings should be erected over ground that had been filled up by general refuse from the streets in the manner they were at present. He knew of several acres, in the aggregate, in Newcastle and surrounding neighbourhood where quarries and brickyards excavated to a great depth, had been filled up with refuse of a filthy character, and houses afterwards built thereon, and inhabited by thousands of working men. The Corporation were to a large extent powerless to prevent it. He hoped that they would let it go forth that in their opinion something ought to be done to stop building on such places until the deposits had become consolidated by the lapse of two or three years, and a layer of concrete or some similar material put over, so that there might be a healthy, solid basis.

Mr. Shotton endorsed Mr. Kyle's remarks. He knew of houses erected in Sunderland not upon mere slag or refuse of furnaces, but upon abominable refuse from ashpits, &c., which had been used to level up ravines or valleys. He thought it was very reasonable that they should protest against such a practice. If building was to be confined to our mother earth, they would be able to get better results than by levelling up a valley. They would be able to get better drainage and the dwellings would be much more healthy. The Corporation ought to have power to prevent persons building on places so filled in.

Mr. Kyle said that when places filled up were built upon there should be drains below the deposits.

The Chairman observed that the difficulty would be to draw together the water.

Mr. Oliver remarked that they were straying from the subject, which was how to get workmen's dwellings. He never expected that the Corporation would do as private individuals and public companies would do—viz., supply the accommodation required for dwellings. The question of what houses were built upon really was a matter for the Corporation. With regard to what Mr. Shotton had said, he thought that they never would be able to follow the ups and downs of natural ground, and he also thought that it would be almost impossible to drain so deeply as Mr. Kyle seemed to think they might. He thought rather that they should use asphalte to render the streets impervious to water. Water should not go through at all. In London, every crevice was sealed—every court, street, or area—with Val de Travers asphalte, and the water could not go through. That appeared to be a proper way of obviating the difficulty.

* Vol. xxiv., pp. 867, 868, 869.

AJACCIO, ILE DE CORSE.

A COMPANY WANTED.

A CORRESPONDENT writes:—As a well-wisher to humanity, and especially to those driven abroad in search of health, I am induced to ask the attention of friends and strangers to listen to the wants of Ajaccio, for the climate offers so many advantages, and may, I think without contradiction, be asserted as one of the best hibernal stations in the Mediterranean. This assertion is not made entirely on my own authority, but from the writings and knowledge of several highly-talented medical men. The salubrity ceded, the question naturally arises, what is the accommodation for strangers,—invalids? There is very little, indeed; abundance of room for a nice, comfortable, well-conducted hotel on English principles and comforts. The hotels, save one, in a splendid road, at which we stayed, and which is more expensive than the others, are *far* from suitable to the real invalid, either by position or arrangement, and that one is conducted upon the German plan, and is constantly filled with Germans, Russians, Danes, Americans, and *English*. I put these the last, as usually the smallest community there, for the climate appears far better known and estimated by our more northern brethren than ourselves. The want of a good, comfortable, nicely-appointed, and well-situated hotel, has been felt and continually increases. A few years since, 1870, a project was set on foot to try and remedy the defect, and help make this place what it deserves to be, a true health resort and winter station. A company, consisting I believe of three or four persons, was started, purposing to build an hotel nearly at the top of this fine road on the left-hand side, facing south, and over-

looking the gulf, &c., having 120 rooms (*chambres*). The Corporation ceded the ground almost gratuitously for this purpose, about 7,710 square mètres, or 7,680 square mètres, I am not certain which, say the larger of the two, for the sum of 25 centimes (say 2½d., twopence-halfpenny!! at 10d. the franc) per square mètre. The hotel to be an embellishment to the city, the plan to be approved by the Corporation, and to be finished within a certain period, or the whole to fall again to the Corporation. The hotel was virtually begun in 1870, and one-half of the basement built with granite and hydraulic cement, walls 20 in. to 22 in. thick, until on a level with this road, when, unfortunately, from one of those unforeseen causes "no fellah can understand," and the Franco-German war, it fell through, and is now in the hands of the city authorities, who would be delighted to have some veritable company take it up, as it stands, upon these terms, or at least as near as the present *acting* Mayor could take upon himself to say yes to, without an assembly being called. Cession of the ground upon the same terms, the present masonry to be paid for according to the ordinary cost of labour, but not of the granite stone,—*nothing* is asked for that! Quarries, if insufficient *on the spot*, permitted to be opened close at hand, so that there would only be the cost of labour, and a few yards carriage. The company to deposit one-third in the hands of the Corporation of the sum to be expended, with permission to withdraw it proportionally as the labour advanced. The Mayor undertakes labourers shall not be wanting so far as he can assist. At the present time there is not work enough and labour is now cheap. The entire cost, I should think, would not exceed 8,000*l.* to 10,000*l.*, according to decoration.

The site is a magnificent one, facing south and overlooking the gulf; the ground slopes towards the sea, and could be laid out in walks and gardens at a little cost. On the ground is an opened quarry of granite, which apparently contains enough to build a large part of the hotel, and the rest may, if huge blocks here and there, mean anything, be found on the spot. There is a large surface, but not deep, well on the west side of the present building. I am told it is never dry, but it is *not* potable; hence water would have to be taken from the river source, which is already brought to within 50 or 60 yards of the site; but it is doubtful if naturally it could be brought higher, as the building is about level with the surface of the large reservoir which supplies the town with really good water; so that to carry it over the building would require a force-pump. There is abundance of room on the ground for a villa or two, and there is a bit of ground adjoining, which possibly could be obtained for a garden if necessary. A road to join the sea road and this one, on each side of this plot, is in project. The ground, if largely planted with the *Eucalyptus globulus*, which grows most rapidly here, and is the tree planted to reclaim marsh land and render it healthy, would yield by its presence additional health-giving properties to the air, for it has abundant virtues in many ways, even competing with quinine medicinally; hence it would serve a double purpose. Vegetables can be had close by, and abundantly. Green peas were offered at the door yesterday (January 19th), and new potatoes we had from the garden a few days since. Flowers can be raised most easily, and by a little management the plot of ground may be made charming at a very small cost. Olive trees now flourish on it, and might be left.

As regards materials for building, hydraulic lime is used with granite *débris*, not sand, as sand and ordinary mortar do not stand well; the former sets quickly, and almost defies separation. This lime has to be brought from the Continent, in sacks. Cost, delivered at the quay of the town, 40 to 42 francs, the 1,000 kilo. or 1 ton. The *débris* is on the spot, or from sifted chippings of the granite stones. The stones are usually cut at the quarry, at a cost, according to softness, at 8, 9, or 10 francs the cube mètre (39 in.). The soft kind is used for the walls, and afterwards stuccoed or left rough, with edgings of hard-faced granite. The labour varies, according to demand, from 2 francs or less to 4 francs, according to the perfection of the workman. The haulage is best done by own horses and Corsican carts, paying the labour or driver. The marble for stairs can be had in Corsica, but cheaper in Italy, ready cut. Red granite, of a splendid quality, can be had in Corsica, for pillars, &c. The timber can be had here from the large forests in Corsica, consisting of splendid pine and most durable chestnut beams, 1 mètre thick and 18 m. long, at a very small cost. There is a large quantity now, already cut into planks, awaiting sale. The costly part of the building is the internal decoration. The ceilings here are mostly painted on the smooth plaster, with water or body colour. No obligation to take the original plan; but a new design must be submitted and approved by the Corporation. Such hotel ought to have its own hot, cold, and douche baths, as the baths of the town are at some distance. It should possess a verandah on three sides, and balconies to each story, also means of keeping the temperature of the hotel pretty uniform,—fireplaces in all the bedrooms; its own billiard and lounging room; an easy staircase, a washhouse and laundry, with drying-room, for washing is an important item, and would need some of the patent machines. As to stables, I question if these, from the noise, smell, &c. would be advisable. The frontage, north and south, is 84 mètres; the depth, 96¾ mètres each side; the cost, conditionally at 2½d. the mètre, about 80*l.* 6s. 3d., though really less, as the franc is nearer 9½d. than 10d. I fancy the ground is not 7,710 square mètres, but 6,880. This was the number given to me at the mayor's office.

The granites, red, grey, and orbicular, are very fine. There is a project on foot, I am told, for gas to the town. It is now lighted by petroleum. There is also talk of a railway, which would, doubtless, open up the riches of the country.

UNHEALTHY OCCUPATIONS.

Dr. Richardson delivered his fifth lecture on Friday evening, the 28th ult. Discussing the diseases engendered by exposure to soluble chemical substances, he referred to the deleterious action of salts of chrome (chiefly employed in the manufacture of pigments), the inhalation of the poisonous particles resulting in ulceration of the face. Ulceration also ensued from the contact of these chromates with slight wounds or scratches on the skin of the worker. Animals employed in chromate works were frequent sufferers from ulceration of the feet and legs by the subtle poison. Cyanide of potassium, much used by photographers, induced great physical suffering in the form of giddiness, dyspepsia, and nervous prostration, owing to the absorption of the poison through the pores of the skin. It would effectually and quickly cleanse the hands of nitrite of silver stains, but it was a dangerous because a poisonous detergent, for although it might perhaps be used with impunity when the skin of the hands was perfect, yet if there was the slightest abrasion or wound in the skin the results might be very serious. Within the last two years a new form of poisoning had manifested itself amongst the men employed in the refining of crude paraffine. It generally appeared, in its first stage, as an eruption of bright red pimples upon the exposed portions of the workmen's skin, and it was purely an affection of the hair follicles, caused by the inflammatory properties of the crude paraffine oil when it penetrated the skin. The disease, when not relieved, continued until the skin was covered with patches of dry, indurated skin, and was not only a source of great disfigurement, but was very painful. The action of soot upon the skin of chimney-sweepers, where cleanliness was not strictly observed, was very irritating, and in some cases had led to a disease known as "soot-cancer," which was, however, far less prevalent than formerly. Arsenite of copper, or Scheele's green, much used for colouring paper-hangings, dress fabrics, and artificial flowers, was a poison the absorption of which produced diseases of the skin and lungs, the latter closely resembling consumption. Artificial flower-makers were the chief sufferers from this cause. Cheap confectionery was formerly largely coloured with this poison, but recent legislation had greatly diminished its use for such purposes. Dr. Richardson then proceeded to give the following summary of diseases induced by industrial labour in thirty-six occupations, viz.,—Diseases affecting the chest—including phthisis pulmonalis or pulmonary consumption, bronchial phthisis, bronchitis, emphysema, asthma, spasmodic flax asthma, chest spasm, and bronchial irritation — were prevalent amongst potters, millstone and stone cutters, pearl-cutters, sand-paper makers, needle and knife grinders, hemp and flax dressers and spinners, rag-workers, millers and flour-workers, wood and ivory turners and carvers, cigar and tobacco manufacturers, walking-stick makers, hair-dressers, brush-makers, fellowship-porters, burnishers, paper-stainers and artificial flower-makers, miners, and trimming-makers. Diseases affecting the heart and blood—including palpitation and irregular action of the heart, intermittent action of the heart, cyanosis, extreme fluidity of blood, and anæmia—were prevalent amongst cigar-makers, lace-frame workers, bleachers, hat-makers, fur-dyers, and aniline dye manufacturers. Diseases affecting the glands—including irritation of salivary glands and salivation, and nephrosis: chronic inflammation of the kidney—were common amongst workers in mercury and lead. Diseases affecting the stomach and digestive organs—including dyspepsia, gastro-enteric irritation, nausea and vomiting, pyrosis (water-brash), choleraic diarrhœa, colic, and constipation — were prevalent amongst cigar-makers, lace-frame workers, potters, painters and lead-workers, fur-dyers, bronze-founders, paper-stainers, tinmen, and braziers. Diseases affecting the skin—comprising ulceration and exfoliation, follicular inflammation, and soot ulcer—were prevalent amongst aniline dye-makers and workers in mercury, bichromate and potassa, arsenic, crude paraffine, and soot. Diseases affecting the bones and teeth—namely, osteitis (inflammation of surface of bone), necrosis, and caries of teeth — prevailed amongst pearl-workers, fur-dyers, and workers in mercury and phosphorus. Diseases affecting the brain and nervous system—including vertigo, cerebral exhaustion, and paralysis, cerebral congestion, apoplectic coma, neuralgia, mercurial rheumatism and neuralgia, and dementia—are found to prevail amongst potters, painters, and lead-workers, aniline dye-makers, chemical manufacturers, workers in bisulphide of carbon and mercury, braziers, and fur-packers. Diseases affecting the muscular system,—comprising paralysis, mercurial tremors, cramp, spasm, and atrophy,—prevailed amongst potters, painters and lead-workers, fur-packers, cigar-makers, workers in mercury and bisulphide of carbon, and bronze-founders. Diseases affecting the organs of sense,—including ophthalmia, double vision, impairment of vision (amaurosis), and deafness,—prevailed amongst cigar-makers, vine-dressers, workers in bisulphide of carbon, and workers in cyanide of potassium (photographers). Dr. Richardson then went on to say that of all the complaints of the chest, pulmonary consumption was the most dangerous and distressing; and after many years of practice and observation, he was unable to say that the medical profession could cure the malady. Nearly all the unhealthy trades engendered consumption to a greater or less degree, and it might be said to be the most fatal of all the diseases from which the artisan suffered, and, with the kindred diseases of asthma and bronchitis, it formed the most prevailing complaint amongst them. The diseases of the heart and blood were not by any means permanent in the system of the sufferer, although they were accountable for much of the enfeebled condition of the workers in many trades, especially in the case of women and young persons. The diseases affecting the glands were principally felt by the workers in mercury and lead, the latter metal being most dangerous to life. The complaints of the stomach and digestive organs were principally of a temporary nature. The diseases affecting the skin, the bones, and the teeth, were extremely painful, although seldom fatal. The diseases of the brain and nervous system, and those of the muscular system, were all of them most distressing and dangerous, especially in the case of the workers in metals and chemicals. The list of diseases concluded with those affecting the organs of sense. There were, said the lecturer, at least four new diseases in this catalogue of complaints to which the working classes are liable; and this fact afforded a fresh branch of study for all who were interested in the condition of those who formed so large a proportion of the population of this country. Dr. Richardson said that in his next and concluding lecture he intended to consider the means he would adopt for the prevention of many of the diseases he had referred to, especially those induced by the inhalation of dust.

Force of the Wind.—During a recent violent wind-storm along the Atlantic seaboard, the tower of the Metropolitan Methodist Church, New York, 230 ft. high, was blown several feet out of upright, and was rocked by the wind. At Colwes, New York, a church steeple, 225 ft. high, was blown down.

HOLYHEAD NEW HARBOUR.

THE INSTITUTION OF CIVIL ENGINEERS.

AT the meeting held on the 1st of February, Mr. Geo. Rob. Stephenson, president, in the chair, the paper read was on the "Holyhead New Harbour," by Mr. Harrison Hayter, C.E.

Of the several schemes proposed, the plan suggested by the late Mr. Rendel was ultimately accepted, and was sanctioned by Parliament on the 22nd of July, 1847. It comprised a north breakwater, 5,360 ft. in length, and an east breakwater, about 2,000 ft. in length (inclosing an area of 267 acres of available water space), and a packet pier, 1,500 ft. long, within the area. The east breakwater and the packet pier were subsequently abandoned. But it was found, as the works advanced, that the harbour was likely to prove too small, even for refuge purposes. The Lords of the Admiralty therefore decided to lengthen the breakwater to 7,860 ft. from the shore, to shelter a roadstead of 400 acres of deep water. The north breakwater consisted of rubble stone, or *pierre perdue*, from Holyhead Mountain, with a substantial stone superstructure, the end of the breakwater being terminated by a head, on which had been erected a lighthouse. The quarries were at the foot of the mountain nearest the breakwater, being rather less than one mile from the commencement of the work. To convey the stone, nearly two miles and a half of single line of railway were constructed, besides other preliminary works, the total cost of which had been 92,000*l*. The total cost of quarrying the rock had been 4½d. a ton, and the cost of filling into wagons, including blasting the large stones, had been about the same. The cost of driving the headings varied from 10s. to 25s. per lineal foot. The average length of heading driven was 5 ft. per week with four men.

The rubble mound was of great size—the average depth of water at low-water spring tides being 40 ft., and the greatest depth 55 ft.—The variation of the tide at ordinary spring tides being 17 ft., and at equinoctial spring tides 20 ft. It contained altogether about 7,000,000 tons of stone. The weight of the stone in mass was about 1 ton to 13 cubic feet, but in the breakwater 1 ton of stone occupied somewhat less than 20 cubic feet. The rubble mound having been formed, and consolidated by the action of the sea, the superstructure of massive masonry was erected. The cost of the north breakwater and works connected therewith, including land, had been about 1,285,000*l*., and per lineal foot about 163*l*. 10s. The cost of the stone deposited in the rubble mound had been 2s. 3d. a ton for the first portion of the breakwater, and 2s. 7d. a ton for the last 2,500 lineal feet. The cost of the superstructure alone, excluding the head, had been 36*l*. a lineal foot.

IMPROVED INDUSTRIAL DWELLINGS COMPANY, LIMITED.

ACCORDING to the report to be presented at the twenty-fifth half-yearly meeting of members, on Thursday, the 17th inst., the capital subscribed is 336,350*l*., of which 250,000*l*. have been fully paid, and 90,060*l*. in new shares of 10*l*. each have been recently subscribed by the members of the company. The total amount of capital paid to December 31st was 257,059*l*. The loans received from the Public Works Loan Commissioners amount to 99,000*l*., and a further sum of 9,000*l*. has been granted, and will be taken up when required.

The rents, &c., amount to 14,810*l*. 0s. 2d., and dividend on railway stock and other items, amounting to 295*l*. 1s. 10d., make the total income 15,105*l*. 2s. 1d. The total expenditure, including the contributions to the Leasehold Redemption Funds and repairs account, amounting respectively to 150*l*. 18s. 4d. and 1,876*l*. 10s., has been 7,915*l*. 11s. 6d., leaving a profit of 7,981*l*. 10s. 6d. Of this amount, 528*l*. 18s. 2d. repaid to the Commissioners during the half-year has been carried to the Public Works Loan Redemption Fund, and the balance, viz., 6,660*l*. 12s. 4d., added to the balance 257*l*. 4s. 8d. brought forward from last half-year, gives a total of 6,917*l*. 17s. available for dividend. Interest on the large sum expended on works in progress, as above referred to, has been paid out of revenue. But for this charge revenue would have been improved by about 1,200*l*. The cost (amounting to only 24*l*. 3s. 7d.) of raising 125,000*l*. capital, in 10*l*. shares, has been this half-year debited to revenue account. The directors recommend the payment of the usual dividend at the rate of 5 per cent. per annum, free of income-tax, which will absorb 5,346*l*. 7s. 10d.; that 1,000*l*. be added to the reserve fund for the equalisation of dividends; and that 571*l*. 9s. 2d. remaining be carried forward to the next half-year's account.

The directors have secured on lease, from the Ecclesiastical Commissioners, a site in Artillery-row, Westminster, and another in Peerless-street, City-road. They have also taken on lease, from the Commissioners of Chelsea Hospital, an important site in Chelsea Bridge-road, and have agreed to purchase the freehold of a large site lying between the Liverpool-road and Upper-street, Islington, close to the Highbury Station of the North London Railway. These sites will enable the directors to erect about 538 additional dwellings, for the accommodation of 2,500 persons. Building operations have already been commenced in Artillery-row, and the plans and elevations for the other estates are being prepared. The new dwellings will be erected on a much improved plan, so as to give still greater comfort and convenience to the tenants, and to provide several further improvements in the arrangement of the domestic conveniences. The directors regret that nothing further has been done in respect of the sites set apart under the Metropolitan Streets Improvement Act, 1872, not one of the ten plots having been yet submitted to tender by the Metropolitan Board of Works. The number of persons resident in dwellings now under the control of the company is nearly 10,000.

BREEDING MONEY.

SURPRISE is sometimes expressed as to the largeness of the fortunes made by individuals, but the fact is that the moment the corner is turned, and a man's income becomes sufficiently large for him to re-invest the *interest* on his savings, year by year, the rate at which the accumulations then go on is past belief.

Many carelessly infer that the increase of money at 6 per cent is *just twice* as rapid as at 3 per cent.; but in reality the increase is vastly more rapid than this. In one hundred years, at 6 per cent., the increase on any given sum is about *eighteen* times as much as at 3 per cent. A lecturer quoted by the New York *Mercantile Journal* says:—If one dollar be invested and the interest added to the principal *annually*, at the rates named, we shall have the following result as the accumulation of one hundred years:—

One Dollar, 100 years, at	1	per cent.	$2½
,, ,,	2	,,	7¼
,, ,,	2½	,,	11½
,, ,,	3	,,	19½
,, ,,	3½	,,	31½
,, ,,	4	,,	50½
,, ,,	4½	,,	81½
,, ,,	5	,,	131½
,, ,,	6	,,	340
,, ,,	7	,,	868
,, ,,	8	,,	2,203
,, ,,	9	,,	5,543
,, ,,	10	,,	13,809
,, ,,	12	,,	84,675
,, ,,	15	,,	1,174,495
,, ,,	18	,,	15,145,007
,, ,,	24	,,	2,551,799,404

In Hildreth's "History of the United States," it is stated that Manhattan Island,—afterward called New Amsterdam, now the City of New York,—was bought by the Dutch from the Indians, for sixty guilders, or *twenty-four dollars* ($24), and this only about 250 years ago. And yet, if the purchasers could have securely placed those $24 where they would have added to the principal annually interest at the rate of 7 per cent., the accumulation would exceed the present market value of all the real estate of the city and county of New York.

LIGHT AND AIR CASES.

CARTWRIGHT *v.* LAST.

THE defendant in this case (Chancery division, before Sir R. Malins) became, in the early part of 1875, the owner by purchase, under an order of the Court, of a valuable property known as Cavendish Mansion, which extends from Burlington-gardens to Cork-street, and, intending to turn the building into an hotel, he proceeded to put upon it an additional story. The plaintiff is the well-known dentist in Old Burlington-street, and he sought to restrain the erection of the proposed new buildings on the ground that they would materially diminish the light on the western side of the house, and by diminishing the light of his consulting and operating rooms seriously interfere with his business.

The Vice-Chancellor, though of opinion that Mr. Cartwright had sustained some injury, was unable, upon the evidence before him, to determine its extent or the proper remedy. Since the writ was issued, the building had been carried to its full height, and the case was not one in which, upon interlocutory motion, he should grant a mandatory injunction for the buildings to be pulled down. His lordship had no doubt whatever, that he now had, whatever might have been the former practice of the court, perfect jurisdiction to grant such an injunction before the hearing. He should not, however, grant one in this case, and for these reasons:—There was no evidence whatever before him to show how much of the building should be taken down. In fact, the present structure was 50 ft. higher than the one which originally stood opposite the plaintiff's western windows. Was 10 ft., or 20 ft., or 30 ft., the proper quantity to be removed? It was, as the case now stood, quite impossible to determine. What, then, should the court do? Why, this,—he should refer the matter to an architect or surveyor, to be appointed by the parties. That was done in the case of Kelk *v.* Pearson (Law Reports, 6 Chancery Appeals, 809). Then the Lords Justices felt great difficulty in ascertaining from the evidence the amount of injury inflicted on the plaintiff. A surveyor was appointed and he made a report. The motion then came on for hearing, was treated as a motion for a decree, and the surveyor examined by the court and by counsel on both sides. His lordship should follow that course, and though sorry to put the parties to such an extra expense, it would enable him, when the surveyor's report was made, to hear, and finally to dispose of, all the matters really in dispute in the cause. The surveyor must (if the parties could not agree upon one) be appointed by the court, and he must, after a careful inspection of the premises, and due consideration of all the written evidence, report to the court what was the extent of the injury sustained by the plaintiff, and what, in the surveyor's opinion, should be done to remedy it now and hereafter. That would give the court some solid, substantial ground on which to decide the whole suit, and which was wanting now.

WHO PUTS THE DRAG ON AT THE INSTITUTE?

SIR,—Last Monday evening the formal consideration of the recent proposals for reform in the Institute of Architects terminated by the reference of the whole scheme, with all other suggestions that had been or might be made, to the consideration of the Council, to report thereupon to a special general meeting at some future time; in fact, to re-commit the whole thing, and evolve a fresh scheme out of the *disjecta membra* of the first one.

Let it not be inferred that those who voted for this way of terminating the first phase of the discussion did not take about the best course under the circumstances. A great many ideas have been thrown together into a sort of chaos, the constituent atoms of which require to be marshalled into order. But how long is this to take? The question was raised in a practical manner the other evening, by the very rational and sensible suggestion of one of the older Fellows, who has taken a leading part in the recent discussions, that the report of the Council should be ready for the general Conference of architects which is intended to be held this year, so that those portions of the scheme which affect provincial members could be then discussed. Some applause followed the suggestion, but a damper was immediately thrown upon it by the remark of the chairman, at a whispered suggestion of the secretary, that the latter gentleman reminded him that it would be "quite impossible" to have a report ready by that time.

Now this is just a specimen of one of the causes which has brought the Institute to such a dead-level state as it has lately been in. For some time past the Institute of Architects has been one of the most unbusiness-like and unpunctual of societies, in all matters of importance. Nothing can ever be done in time. It was only by dint of repeated attacks and letter-writing in the professional journals, that even the ordinary virtue of punctuality in taking the chair at the ordinary meetings was at last enforced, as it were, at the point of the sword. It is this dilatory, sleepy, procrastinating, slow-coach administration which is tiring every one out, and clogging the wheels of the machine. Here we have been all talking for the last two or three weeks of the great importance, among other points, of gaining the

interest of the architectural profession at large in the Institute, of connecting it more closely with the country societies and the country professional men generally; and then, when the very opportunity for enlisting their interest in the whole subject is forthcoming in the natural course of things—when we have the opportunity of making the Architectural Conference this year an occasion of arousing some general interest in regard to proposals which we hope will be for the benefit both of the Institute and of the profession at large—we are to be officially told that it is "impossible" that this opportunity can be taken advantage of. What does "impossible" mean? The Conference will not, at any rate, be held till May, and need not be held till June; and we are to understand therefore that the Council of the Institute cannot, in a space of three months at the least, or a good four months if they choose, arrive at any definite ideas to lay before the Conference, and thus make the discussion of the subject a national and not a merely metropolitan affair. As the meeting broke up, one gentleman present observed, "Well, now I suppose we shall hear nothing more of this for two years!" That, unfortunately, is pretty much what many of us feel; but one thing is quite certain, that if nothing is heard of it for two years (or even one year), it will be too late, for any interest aroused by the recent proceedings will have died away, and all the record of what has been done, talked, and suggested, might just as well be put into the fire.

If the Institute, after having attracted public attention by all this display of zeal for reforming itself and advancing the profession, is so swathed and entangled in red-tape administration that it has not the spirit and energy to take time by the forelock, and seize the first and most fitting opportunity of striking while the iron is hot, and of drawing the representatives of the provincial profession into practical co-operation in its schemes, it deserves to go to the wall, and to stop there.

Bis dat qui cito dat.

THE PIECE-WORK QUESTION.

Sir,—Piece-work does not of necessity bring with it, as some would have us suppose, any decrease in the price of labour, for we have only to refer to the colliers, puddlers, and many other trades, to see that the price of labour actually rises with the price of material. Agitators may talk about what a man ought to get, but the hard fact remains still unalterable, that the value of a man to his master is always in proportion to the *result* of his labour: consequently if a man unskilful in his trade, can by application to one particular branch of it do more of the kind than an ordinary journeyman, he makes himself more valuable to his master, and so long as the master can find him work of that particular kind, the man is worth, and the master is willing to pay, a higher rate of wages than to an ordinary journeyman. The truth of this is evident in any large workshop, where it will be found that certain men receiving the same rate of wages will, if obliged to change their jobs each for the other, be neither able to do so much work as his fellow was doing, and consequently neither would be worth so much to his master as he was previously to the alteration.

In a trade where a man repeats the same kind of labour for weeks together, there should be no objection to pay him for the result of his labour. In every trade there are men who from their natural gifts are competent to do more work than their fellows, and are therefore entitled to a higher rate of pay from the fact that the result of their labour is of more value to their master than that of an ordinary man.

In arriving at the proper price for the manufacture of an article, the cost of its production by a man of ordinary strength and ability must be taken as a standard; men who can then earn more than their wages are entitled to what they may earn in excess, and those who cannot earn so much as their wages are certainly worth no more. The society requires all to be competent and able to earn an ordinary rate of wages. But from the number of inferior workmen who are society men we fear this rule is not in all cases enforced. Besides which, what is to be done with a man of twenty-one years of age who from neglect of his opportunities to learn during his apprenticeship has failed to make himself fairly master of his trade? Certainly he cannot earn an ordinary rate of wage.

A certain class of men complain that in slack times some men are discharged, instead of all taking a share in the work and all working less hours per week. But, as in such times it is not the most skillful hands that are dispensed with, it is only the inferior who have any cause to fear such calamities. The more a man applies himself to his trade, and the more proficient he makes himself, the more right has he for employment over others who have not taken so much trouble to perfect themselves.

When any two classes of men have interests in common they always work much better together. And this is the case where the piece system is adopted; for a master's interest is to turn out of his factory all the work he can in a given time, and the man has the same interest, for he knows that the more work he does the more pay he gets.

We only have to look at the three great industries in England, viz., cotton, coal, and iron, which are almost exclusively worked by the piece in all their branches, to see that the price paid per article advances or declines according as it is worth more or less in its finished state in the open market.

I have only to add, in conclusion, that where a proper system of supervision is in practice, it is equally difficult for a man working by day or piece to get his master to accept inferior or slop work, and there is no system so calculated to give to individuals what they are worth as payment by piece. For, as skill and speed are important qualities in the possession of a man, but either one without the other is of inferior value to the combination of the two, so the possessor of both is worthy of all the emolument he can obtain.

Manufacturer.

VENICE.

Sir,—With reference to a notice in the *Builder* of 29th January, will you allow me to say that on the 27th of June, 1875, Signor Luigi Monga, acting as agent for Signor D. C. Dalgairns and his associates, presented a project for the bringing of the water from the Seriola direct into Venice in connexion with the formation of certain artesian wells, which latter, however, was a secondary rather than a primary part of the scheme, these wells being only required in case of war, as they would be within the fortified lines of the town. On the 26th of January, 1876, the concession was voted in favour of the said Signor D. C. Dalgairns and his associates by 47 votes out of 54, and the concession was granted and ordered to issue. There were six competitors for the concession. I am able to make these corrections with authority, and to add that the official documents have been placed before me.

William Smith, C.E.

THE SYSTEMATIC MEASUREMENT OF THE HUMAN FIGURE.

Sir,—We are now a sufficiently scientific people to immediately recognise the great importance of obtaining reliable standard measurements of the human figure. In ancient times several portions of the body were taken as units of measurement,—the foot, the hand, the thumb, the cubit. At first thought this would appear to afford very uncertain and unsatisfactory standards for commercial purposes, but if the averages of a sufficient number of actual measurements of these portions of the body were obtained, these averages would afford standards of measurements sufficient for all the general purposes of life. The human frame, like other fluctuating phenomena, oscillates about a certain mean type.

My attention has been freshly directed to this special object by a pamphlet by Mr. Joseph Bonomi, the respected curator of the Soane Museum, entitled, "A Project of an Instrument for the Identification of Persons,"* &c. The instrument is sufficiently simple and ingenious, but whether this, or any other mode of measurement which may be considered better, be adopted, it is of far more importance just now that we should have so earnest an advocate for instituting systematic measurements of the human frame.

Possibly photography might be pressed into the service of this kind of work. The figure to be photographed might be placed against a reticulated frame, so that we should, at once, be able to ascertain the proportions of the subject photographed. Of course, all proceedings would have to be carried out with scientific accuracy.

This plan might be useful for "identification," &c.; but in respect to art, a scientific determination of the present proportions of the human frame would be invaluable. All fanciful theories about the proportions of the human frame developed out of the moral conscience, as it is said the German set about working out his camel, are futile. If we desire to have anything trustworthy on this subject it must be ascertained from actual measurements.

To men used to such investigations it would at once be evident that we could obtain the measurements of the type of every regiment in the service; and it would be a matter worthy the consideration of the Government whether it would not be a useful public work, as well as a public record, to have sculptured types of some of our finest regiments executed by the most eminent sculptors.

Meter.

* Noticed some time ago in our pages.

QUEEN ANNE STYLE.

Sir,—"Queen Anne." These two words flow trippingly on the tongue by reason of the number of liquid letters. So does the expression "fal-lal-la." But in neither case is any very distinct definition obtained. If in defect of definitiveness, we allow imagination to run riot as to the origin of the present use of the expression "Queen Anne" with reference to architecture, it suggests that the users are oblivious of the existence of any such works as those of Palladio or Vignola, of Raffaelle or Michelangelo, of Blondel or Philibert de Lorme. Moreover, the expression is misleading, as tending to suggest to the ignorant mind that the misdeeds of dunces like John Thorpe, Inigo Jones, Wren, Gibbs, Sir William Chambers, and Sir Robert Taylor, instead of being diffused over a period of two centuries, were all concentrated within that short reign during which the Battle of Blenheim was fought, the character of Sir Roger de Coverley created, and the youthful Dr. Johnson "touched" for the king's evil by the last Stuart monarch.

G. M.

WAPPING IMPROVEMENT ARBITRATION.

MOODIE *v.* METROPOLITAN BOARD OF WORKS.

Sir,—Half the truth may be sometimes more deceptive than a complete falsehood. In your report in this case last week you state that witnesses were called on behalf of the claimant, and their figures varied from 8,000*l.* to 8,418*l.*, and that the umpire's award has since been made at 8,018*l.*, the Board's offer being 5,400*l.*

Whoever supplied you with information might have made it fuller, yet somewhat nearer the truth. The claim sent in was 15,720*l.* 6*s.*—viz., leasehold, 9,331*l.* 6*s.*; fixtures, 453*l.* 18*s.*; and 5,935*l.* 2*s.*, for damage to business by forced removal,—viz., two years' net profits.

For reasons that need not be entered upon here, the officers of the Board are precluded dealing with Messrs. Fuller & Fuller, the surveyors who had the carriage of the claim; but their client, Mr. Moodie, called upon me, and after two interviews, expressed his unwillingness to accept less than 9,000*l.*

Hence there was no alternative but to proceed to trial. Practically, the sealed offer in this case had been exceeded; for, upon receiving further information as to trade profits, &c., I told Mr. Moodie that I was prepared to recommend a very considerable advance on the amount named prior to the arbitration being proceeded with.

F. W. Goddard,
Surveyor to the Board.
Metropolitan Board of Works.

MASTERS AND MEN.

The Plymouth Masons and Piecework.—The Plymouth masons have given notice to their employers that piece-work must terminate.

The Oxford Carpenters and Joiners.—At a meeting of a large number of the carpenters and joiners of Oxford, on the 2nd inst., it was decided to memorialise the employers for an extra penny per hour, and also to adopt a new code of rules. March 1st was fixed upon as the day for the reply of the employers to the request of the men.

Bricklayers at Barnsley.—The bricklayers employed in the Barnsley district, who are connected with the Sheffield Association, have given three months' notice for an advance of 3*s.* per week. It is said the demand is made in consequence of the great request for houses in the district, and in the event of the masters not complying, it is the intention of the Central Association, which has about 17,000*l.* in hand, to purchase land in and near Barnsley, and build a number of superior houses.

The Birkenhead Painters and the Town Commissioners.—At a meeting of the Birkenhead Trades Council, on the 2nd inst., the following resolution was passed:—"That the Council is of opinion that the action of the Market Committee of the Birkenhead Commissioners in employing the market constables to paint the fountains in the market in December last was an act of gross injustice to the heavily-taxed master painters in the township, as it debarred duly qualified journeymen painters from doing the said work, a large number of them being out of employment at that time."

The Hereford Painters.—The working painters of Hereford have addressed the following letter to their employers:—"We, the undersigned, employed by you, should feel thankful if you would grant us the system of payment by the hour, the same as that paid by the other branches of the building trade in Hereford and the surrounding towns, viz., 6d. per hour, to be paid at one o'clock on Saturdays; feeling we are justified in this request by the high price of provisions, and to place us on the same equality as our fellow-men. We should feel obliged by an answer to the above request by the 4th of March."

The Wigan Bricksetters.—The Wigan bricksetters have applied for an advance in their wages of 6d. per day, to start from the 1st of April. The masters have not yet decided what action they will take in the matter.

VERDICT OF MANSLAUGHTER AGAINST OWNERS OF PROPERTY.

AN inquiry took place before Dr. Hardwicke into the circumstances connected with the death of Elizabeth Sergeant, aged 79, of Liverpool-road.

Mrs. Mary Whittington said deceased had resided with her six years. There was a raised pavement some 6 ft. above the roadway in front of Paradise-terrace, which was between 300 ft. and 400 ft. long, unprotected by railing, and at seven o'clock on Saturday evening deceased fell from the pavement, and sustained severe injuries.

Mr. James Beal, Regent-street, here said he was agent to some of this property. There had been railing put up to prevent people falling from the pavement, but it had been torn down by the boys and girls. There were other owners of property on the terrace, and a dispute arose as to who ought to pay for further railing. He, however, had determined to end the dispute by putting up a strong wooden railing throughout, and the work was to have been commenced on the previous day.

Several jurymen urged that the place was exceedingly dangerous, and that the owners were guilty of culpable neglect in allowing the place to be so long unprotected.

Ultimately the jury returned a verdict to the effect that "Deceased died from shock and injury, the result of falling from a pavement in Liverpool-road, which was caused by the unprotected state of the said pavement, and that the owners of the property were thereby guilty of Manslaughter."

The verdict was recorded, and the Coroner made out his warrant against the several parties, who will have to appear in due course at the Old Bailey.

THE ROYAL AQUARIUM AND THE WANT OF SEA WATER.

THE folks at the Royal Aquarium, seem to be in a sad fix about obtaining sea-water. Well, an aquarium it is not, unless you call a few Chinese carp (gold fish) swimming over broken cockle-shells an aquarium.

I am told it will require miles in length of railway trucks, and I know not how many hundreds of tanks, to bring the sea water from Brighton. And no one can say how long this process will take.

The Company, I hear, flinch from the expense—four thousand pounds. Now, having had tanks of my own for fifteen years, perhaps I may be heard upon the point.

It is not possible to use a wine, a beer, or cider cask—no, not even a new cask, and hope to bring pure sea water to London.

Suppose you knock a hole in the two ends of a cask, make it fast to a buoy out at sea, and let it be there for a week: in two days the water is putrid and no fish can live in it—if you desire the cask to be sent 100 miles—afterwards.

It was only a few days ago I heard of what is called a fix about sea-water.

With this preface I will put my notions in a few words:—

1. Barges with hatches to batten down (barges, you know, that will keep water out will keep water in); 2, and next,—In fair weather with a steam-tug three or four of such barges to be towed out beyond the Foreland; then having obtained (perhaps a novel cargo) water, let the barges be brought to the Millbank Landing next the iron bridge, and then utilise the water-carts that are useless at this time of year. TRUTH.

EXCAVATIONS IN ASIA MINOR.

MR. R. P. PULLAN, M.R.I.B.A., delivered his concluding lecture, "On the Excavations in Asia Minor for the Dilettanti Society," at the Royal Institution, Albemarle-street, on Saturday afternoon. Its subject was the excavations of the Temple of Minerva Polias. They were undertaken and carried out during his third expedition in the service of the Society, on which he started in August, 1868, returning to England in the summer of the following year. In his opening remarks Mr. Pullan slightly touched on the ancient history of Priene, a member of the league of twelve Ionian cities in Asia Minor. It was seated at the foot of Mount Mycale, and was formerly on the sea. The Mausoleum Room at the British Museum, since, besides the relics of the Carian king's world-famous tomb, it contained those from the noble temple at Priene, might fairly be styled the Pythios saloon. The lecturer contrasted the beauty of the sites which he had before excavated with the sad desolation of that of Priene. Here, too, he had to struggle against many other disagreeables, such as want of water, as well as dearth and badness of food. He found two noble Ionic columns of the temple still standing to the height of 12 ft., and the cella wall was preserved in its integrity as much as from one to two yards above the ground. Inscriptions of great value were brought to light, together with precious fragments of sculpture, all of which were safely housed in the British Museum. On the whole, in spite of many *contretemps*, this was the most fruitful of his three expeditions. He excavated with good results; the temple pavement was laid bare, and was, happily, found entire; the cella was cleared of rubbish, the steps of the parabolas were brought into the light of day. But at length fever seized his workmen, and brought further operations to a close for a time.

HOW THEY LIVE AT SPENNYMOOR.

AT a recent meeting of the Spennymoor Local Board of Health, the newly-elected inspector (Mr. E. Robson) presented his first report on the sanitary condition of the town. He said the place was in a very unsanitary condition, not only as regarded cleanliness and drainage, and in many places ventilation, but from the slothful, filthy, and debauched habits of many of the population in the back slums. In seven houses in George-street and Vinycomb-street there were eight tenants, the property consisting of sixteen rooms, and in these lived no less than twenty-three children and thirty-eight adults, making a total of sixty-one persons. In a block of property on the east side of Dundas-street there was not a single convenience for the whole lot of people. To add to the filthiness, one of the houses was occupied as a beerhouse. We are told that the chairman, amidst much laughter, said it was a fact that as soon as one lot got out of bed others took their places. The report was received. As a local journal remarks, such revelations are hardly fit subjects for laughter.

ACCIDENTS.

At the Royal Aquarium.—Mr. Bedford has held an inquest at the Sessions-house, Broad Sanctuary, on the body of Robert Corbett, aged 23, a florist, of Highgate New Town, who was mortally injured at the Royal Aquarium. The evidence of Mr. E. Pask, of 9, Walton-street, Chelsea, and other witnesses, showed that the deceased was standing on the ground-floor of the building when a heavy piece of wood was dropped or thrown from the gallery, and falling upon deceased, inflicted a compound fracture of the skull, which terminated fatally. Who it was who let fall the wood could not be ascertained, although it was known that several painters were at work in the galleries at the time of the occurrence. The jury returned an open verdict.

Fall from a Ladder.—Last week Dr. Hardwicke held an inquest at the Court-house, St. Pancras, on the body of Wm. Dovell, aged 78, a carpenter, who died in the workhouse on Thursday, from injuries sustained by falling from a ladder, which broke at the base. After a full inquiry, the jury concluded that deceased alone was responsible for the accident, as he ought to have examined the ladder before using it. A verdict of "Accidental death" was recorded.

Fall of a House in Dublin.—The other day a large three-storied house in Golden-lane, Dublin, fell out into the street. Two men who were passing by at the time of the occurrence were seriously injured by fragments of the *débris*, and had to be taken to the hospital.

Fall of an Iron Roof.—Last week the iron roof of a large building belonging to the North British Railway Company, at Cowlairs, near Glasgow, came down with a great crash, killing a boy on the spot, and seriously injuring three men, one of whom is not expected to recover.

Miscellanea.

Electricity and Railway Travelling.—At the weekly meeting of the Royal Institution on Friday night in last week, a paper "On the Applications of Electricity to the Protection of Life on Railways" was read by Mr. W. H. Preece, one of the Divisional Engineers of the Postal Telegraph system. Mr. Preece set out by proposing to establish three propositions,—viz., 1, that railway travelling is dangerous; 2, that railway travelling is safe; and 3, that the danger is potential, and the safety actual; and that the one has been converted into the other by the operation of scientific thought, and by the application of scientific skill. As regarded the second proposition, the lecturer adduced some very interesting statistics, showing that in proportion to the total number of persons who met with violent deaths, only a small number were killed on railways. Analysing the different causes of accident on railways, the lecturer showed that defective "human machinery" was responsible for 41 per cent. of these mishaps, defective signals for 28 per cent., defective permanent ways for 18 per cent., and defective rolling stock for 13 per cent. He then proceeded to show that telegraphy, or the art of conveying information by certain preconcerted signals to the ear and to the eye, is the chief aid of the railway engineer. These signals are interpreted to the outward observer by mechanical appliances familiar to all who travel by railway, and are exhibited in different forms to suit the requirements of day and night traffic. Speaking of the block system, the lecturer characterised it as the greatest element of safety on railways. By its means trains travelling on the same line of rails are kept apart by a certain and invariable interval of space, instead of by an uncertain and variable interval of time. Block systems are of two kinds—"absolute" and "permissive." The latter Mr. Preece characterised as no "block" system at all, but a system introduced, not to secure the safety of trains, but to increase the capacity of the line for the transmission of increasing traffic.

Theatre Royal, Covent Garden.—Mr. Charles Rice, having proved himself a very good manager, desires to show his London friends that he is also a good actor, so he is now playing *Shylock* in the "Merchant of Venice." If we were to say of his assumption "this is the Jew that Shakspeare drew," we should say what is not correct, but it is played with great spirit, and serves to show that there are parts in which Mr. Rice would doubtless prove effective. Mr. Millard, who plays *Antonio*, is the most satisfactory of his supporters. Mr. Rice promises the revival of a play of Shakspeare's, if encouraged, on "a scale of unexampled completeness." Should he be led to carry out this promise, as we hope he may be, he must get some competent person to advise him in architectural and archæological matters. And with reference to costume, let us suggest to him that *Shylock*, a Jew, never wore a staring maltese cross in his cap. The pantomime here is still running gaily. It is full of innocent fun, and includes charming scenery and some very good singing.

Mr. Ellison's Claim on the Douglas Street Board.—At the last meeting of the Douglas Street Board, the Government Commissioner, Mr. Dalrymple, made a speech and motion in reference to the charge of want of courtesy brought by Mr. Ellison against the Board in omitting his name from the scroll placed under the finishing block of the promenade enclosure works. He said that the placing of the scroll, although not the act of the Board, had been mentioned by Mr. Powell to two of the members and approved by them, and had been copied by the clerk to the Board. The Board had been advised by their advocates to keep neutral, inasmuch as any claim which Mr. Ellison might have would not be against them, but against the highway fund, and this course they adhered to, inasmuch as Mr. Ellison claimed to have his name on the scroll, not as a matter of courtesy, but as a recognition of his money claim. He, therefore, approved of Mr. Powell's action as being correct and proper, and moved that it should be adopted as the official act of the Board. For himself, he added that he would never consent to any reference or mode of settlement which would not end in obtaining the oath of Mr. Ellison, on the one hand, and the oath of two persons who state that before he brought out his plan in 1870 they furnished him with the prospectus and plan printed by Mr. Williams, of Liverpool. If Mr. Ellison applied to the Tynwald Court, he (Mr. Dalrymple) would get this part of the matter investigated; and he hoped the Board would always adhere to their determination not to meddle in the matter, but to leave it to the referees who were lawfully authorised to interfere, namely, the Tynwald Court. The motion was carried unanimously.

Municipal Buildings at Reading.—At the quarterly meeting of the Reading Town Council, held on the 3rd inst., a report was presented by the Municipal Buildings and Streets Improvement Committee, stating that a meeting of the committee was held on the 25th ult., when the mayor submitted several sketches which had been forwarded to him by Mr. Waterhouse, the architect, showing the arrangement of the fittings which he recommended to be provided for the new council-chamber. The committee having considered the sketches, instructed the borough surveyor to prepare a modified plan, showing the seats for the members of the Council at meetings of the Council, arranged in a circular form, and separate provision for the officers of the Corporation and the representatives of the press. The deputy town-clerk reported the steps which had been taken for raising by subscription the amount which would be required to defray the cost of providing the proposed clock, bells, and machinery for the tower, and it being estimated that the cost would be about 700*l.*, the mayor was requested to advertise the subscription-list, with a view to raising that amount. The mayor called the attention of the committee to the condition of the interior of the town-hall, and it was resolved to recommend the Council to take steps for its repair and redecoration, so that the work might be completed simultaneously with the completion of the new municipal buildings. The recommendation was agreed to.

The Howth Drainage Competition.—At a recent meeting of the North Dublin Union Sanitary Board, the principal business was to receive the report of a committee appointed to consider plans prepared by several engineers, for the drainage of Howth. The report from Mr. W. F. Cousins, C.E., having been read, it was agreed, that owing to the difficulty of constructing a sewer on the East Pier, any plans suggesting that outfall should be abandoned. It was resolved unanimously that the first premium (20*l.*) for plan and specification for Howth drainage be awarded to Mr. F. A. Doyle, C.E., Kingstown. The second premium (5*l.*) was awarded to Mr. Leonard, C.E. The competing engineers were:—Mr. Leonard, C.E., Messrs. Butt & Son, C.E., Mr. Palles, C.E., Mr. Maher, C.E., Messrs. Lyons & Ferguson, C.E., Mr. P. M'Cann, C.E., Mr. F. A. Doyle, C.E., and Mr. Adam Scott, who advocated Liernur's pneumatic system of drainage.

Ipswich Fine Art Club.— The second annual exhibition of the Ipswich Fine Art Club has just been opened. The object of the association is to encourage local art, in which it has been highly successful, and the present exhibition comprises numerous pictures by Suffolk artists. In addition there is a loan collection from South Kensington.

London and County Bank.—The report, as advertised, deals with large figures. It states with reference to the exceptional loss arising out of the failure of Collie & Co., that it has been decided to transfer 75,000*l.* from the balance carried forward in August last to the special account previously opened, which would in the judgment of the directors fully cover the whole of the deficiency. The available profits, after making the usual provision, amounted to 156,731*l.* The sum of 25,000*l.* was added to reserve, bringing it up to 699,522*l.*, and after providing 15,000*l.* for interest on new shares, a balance of 14,731*l.* remained to be carried forward. The present dividend of 8½ per cent. makes, with that before paid, 16½ per cent. on the year 1875. The balance-sheet gives the following particulars:—Assets: Cash at head offices and branches, &c., 2,735,258*l.*; ditto lent at call on securities, 3,375,271*l.*; investments on Government and other stocks, 2,417,560*l.*; discounts, advances, &c., 16,967,880*l.*; and freehold property, 441,138*l.* The liabilities consist of paid-up capital, 1,499,045*l.*; reserve fund, including amount added on the half-year's business, 699,522*l.*; customers' balances, deposits, &c., 21,399,784*l.*; and acceptances, 2,162,095*l.*

Society for the Encouragement of the Fine Arts.—On Thursday evening, February 3, Mr. Walter Hamilton delivered a lecture "On the Origin of English Dramatic Art," Mr. Hyde Clarke, D.C.L., in the chair. Having shown that the drama in England, as in almost every other country, was exclusively religious in its earliest stages, and that the old miracle plays were attended by the public as part of their religious duties, the lecturer traced minutely the gradual development of the legitimate drama, which became more secular in its subjects, and more original and poetical in its composition. He took occasion, finally, to point out that, true to its origin, nearly every drama of acknowledged merit inculcated the highest lessons of morality and propriety, and that almost every English writer of eminence had written something for the stage. A discussion ensued in which Mr. G. Browning, Mr. A. G. Babington, Mr. Meenacshaya, Mr. Thomas Gilks, and the chairman took part.

Humane Societies. — Humane societies spread rapidly throughout the civilised world, and new life-saving processes are everywhere being studied and perfected to attain more easily the noble end of saving human lives from the sea or fire. But to ensure a greater success and to obtain from this philanthropic work all the beneficial effects of which it is capable, it is desirable that efforts should be united, and that all the achievements of human industry should be made the patrimony of all mankind. With this aim the Humane Society of Genoa have resolved to keep during the first days of July, 1876, an international congress of all humane societies and those institutions which favour experiments in that praiseworthy direction, for the progress and improvement of the same institutions and the means of salvage. They seek the co-operation of all countries.

Land in Edinburgh.—At Heriot's Hospital offices, Edinburgh, on the 20th ult., there was put up to public roup certain feuing ground belonging to the hospital recently laid off in Leith-walk and adjoining cross streets. The *Metropolitan* says the frontage towards Leith-walk, extending to nearly 1,000 ft., was exposed in sixteen lots, all, excepting those at the corners of cross streets, having a uniform length of 60 ft. The upset price was in each case 12*s.* of annual feu-duty per foot of frontage. At the upset price the annual value of the ground would have been 576*l.* The value actually realised was 651*l.* of feu-duty, representing, at twenty-four years' purchase, a capital sum of 15,624*l.* The area of ground disposed of being barely three acres in extent, the annual return will be 213*l.* per acre, equal to a capitalised value, per acre, of over 5,000*l.*

The Iron Gates and Railings from St. Paul's Cathedral. — "Man About Town," a writer in a sporting contemporary, charges the Dean and Chapter of St. Paul's with irreverence for having resolved to dispose of the entrance-gates of St. Paul's. He states that a firm of iron and metal merchants are now offering for sale, to quote from their own advertisement, "the State entrance-gates of St. Paul's Cathedral, and about 150 ft. of fine railing belonging to the same, at a lump sum of 150*l.*, delivered to vans at our yard." These gates were erected in 1750, and are of Sussex iron.

The Victoria (Philosophical) Institute. At the meeting of this Institute, held on Monday, Mr. C. Brooke, F.R.S., in the chair, a paper on "Heathen Cosmogonies compared with the Hebrew" was read by the Rev. B. W. Savile, who stated that its object was to contrast what the late Sir Charles Lyell termed "the cosmological notions" entertained by the *savans* of the ancient world, who were without a revelation from on high, with the Mosaic record as laid down in the first chapter of Genesis. The paper contained a brief review of the cosmogony of the Egyptians, Phœnicians, Chaldeans, Persians, Hindoos, and Chinese; and an extended one of what the learned Greeks held and taught on the same subject; together with an examination of some points connected with the atomic philosophy as recently advocated by Professor Tyndall.

The Proposed Torquay Aquarium.—At a public meeting held at Torquay a short time since, it was decided to accept Mr. Bridgman's scheme for an aquarium, &c., provided that the Aquarium Committee were satisfied on examination that Mr. Bridgman would be able to carry it out in a satisfactory manner. It is now stated that Mr. Bridgman has developed his scheme, and is making arrangements for the land required; also that his financial friends are prepared with the whole of the capital, which will place him in a good position when he next goes before the committee. The aquarium is proposed to have a greater height from floor to ceiling than those of London or Brighton. A special feature in his plans will be an open air skating-rink facing the sea, 200 ft. long, and about 45ft. wide.

Memorial of the late Lady Wenlock.—A recumbent effigy of the late Lady Wenlock, sculptured by Count Gleichen, has just been placed in the parish church of Escrick, near York. The figure, of the purest Carrara marble, is of life-size, and placed on a pedestal of Huddlestone stone and Sienna marble, the appearance of the pedestal itself being much enhanced by the insertion of side panels of rosso antico and verd antique marble. Four carved columns support the Giallo di Sienna slab on which the figure reclines, and the pedestal is placed on a substantial block of black marble. The monument is placed near the chancel. The pedestal was designed by Mr. F. C. Penrose.

An Ice Rink.—A new and startling sensation awaits the pleasure-seekers of the ensuing London season. Roller-skates and the like are quite thrown into the shade by a perfect sheet of solid ice, maintained constantly at a low temperature, so as to bear skaters all day and all night long if necessary. For five or six years Professor John Gamgee has been working incessantly at the economical production of artificial cold as applicable to fresh meat preservation, and this has led to so remarkable a control over temperature as to provide a remedy for the evils of asphalte and roller-skates. On January 6th he completed a rink of modest dimensions, but which has since afforded pleasure to some scores of skaters.

Edinburgh Architectural Association Sketch Book.—It is proposed to publish a limited number of copies of this work. The work will consist of yearly volumes of six parts, issued at intervals throughout the year. Each part will consist of six plates, contributed by members of the Association. The volume for 1875–6 will contain of measured ecclesiastical work about ten plates, of measured and sketched domestic work about sixteen plates, four to six plates of wood-work, and the remainder of measured and sketched details, such as plaster-work, painted decoration, iron-work, &c.

Proposed New Schools at Oxford University.—The Oxford University correspondent of the *Morning Post* says that it is understood that five architects—namely, Messrs. Bodley, Champneys, Deane, Jackson, and Scott—have sent in designs for the new schools to the committee of selection appointed to consider the matter. The latter will have to submit the design they prefer to Convocation for either approval or rejection. It is much to be hoped that this long-pending matter will at length be settled, as the new buildings are urgently required, and much time, money, and convenience have already been sacrificed to no purpose.

"Building before Line of Front."—Mr. Arnold has given a judgment in a case of this kind — the Vestry Clerk of Chelsea against Messrs. Adamson,—but we must postpone notice of it until next week.

The "Positive" Ventilation of Coal Mines.—A paper on "The Positive Ventilation of Coal Mines" was read on the 25th ult., at Manchester, before the Society for the Promotion of Scientific Industry, by Mr. Alderman Taylor, of Rochdale. The system of ventilation he advocated was that of forcing air into the mine by the piston, and regulating its pressure and velocity at the exit. By the adoption of this plan he contended that the ventilation will be under complete control both as to quantity and certainty, and moreover will be perfectly independent of atmospheric changes.

Building Operations at Brechin.—Working men's houses have been very scarce in Brechin for several years, but it is now stated that a set of houses is about to be erected in Montrose-street, by private enterprise, which will supply in some degree the long-felt want of suitable accommodation for the working classes. Large granaries are being erected at the head of Southesk-street for the Brechin Distillery Company. Building operations are going rapidly forward at the High School, the west front being already well advanced.

Wood Carving, Sheffield School of Art.—At the last distribution of prizes at the Sheffield School of Art, a prize was offered with the view of inducing some of the students to direct their attention to carving in wood. We are glad to hear that there are at present eight competitors for the prize, and there may be some more. The works that are ready for exhibition will be shown at the annual meeting some time this month; but the prizes, we are told, will not be awarded till June or July.

A Presentation.—Mrs. Palmer, the wife of the late Mr. John Palmer, builder, of Old Gravel-lane, St. George's, was presented with a handsome electro-plated service, bearing the inscription, "Presented to Mrs. Palmer by the *employés* of her late husband as a token of their respect." The presentation was made on behalf of the workmen by Mr. R. Marchant, the foreman, who represented about fifty subscribers, all of whom had been for many years in the service of Mr. Palmer.

Portland Market.—The area of ground in the rear of Oxford-street, now the site of Portland Market, has been sold by public auction. The biddings were very spirited. Commencing at 10,000*l.*, they soon passed double that sum, Messrs. Hanraty, Rose, and Lemaitre being the principal bidders. Finally, the property fell to the bid of the latter gentleman, who purchased it at 27,500*l.* for Louise & Co. As soon as the present short leases have lapsed the ground will be cleared.

The Consett Waterworks.—The Consett Waterworks Company have just completed and successfully filled at Smiddy Shaw, Waskerley, the first and largest of the storage reservoirs, by which their storage capacity for use in summer months is increased to the extent of 300,000,000 gallons. The works just completed include an embankment 1,100 lineal yards in length, with a maximum height of 51 ft., and containing the large amount of 650,000 cubic yards of earthwork.

Piece-work.—A discussion on this subject took place at the Artisans' Institute, Castle-street, St. Martin's-lane, on Thursday evening, the 10th, and will be continued on the 17th inst. Admission free to members of London Working Men's Clubs and trade societies, and to employers of labour. We are informed that Professor Leoni Levi, the Earl of Rosebery, several leading workmen and large employers, have promised to attend if possible.

The Aberdeen Harbour Engineer.—The Finance Committee have agreed to recommend to the Harbour Board that Mr. Dyce Cay, the resident engineer, be allowed to undertake private work (being still fully responsible for the carrying out of the harbour work), and that his salary be reduced from 800*l.* to 500*l.* To enable this arrangement to be carried out, an assistant engineer will probably be appointed, at a salary of 250*l.*

New Bridge for Hythe.—The Corporation of Hythe have decided to build a bridge over the Royal Military Canal, which will shortly come into their possession. The bridge will replace the old Town Bridge, from Bank-street to the Stade, and will cost about 450*l.* It will be a girder bridge, 30 ft. wide. The designer is Mr. Goode, engineer and expenditor of Romney Marsh Level.

The Nineveh Exploration.—Mr. George Smith, of the British Museum, has just returned to London from Constantinople, whither he went three months ago to solicit the requisite authorisation for prosecuting his important exploration of the ruins of Nineveh. After contending with the Sultan's Ministers for more than two months, he gained his object and has returned home with his "pass," in order to organise an expedition which will shortly set out for Nineveh.

The Drainage of Bromley.—A large body of the ratepayers of Bromley, being of opinion that it is essential to proceed immediately with the drainage of the parish, and that the cost of joining the West Kent main sewerage scheme will be reasonable, and the advantage great, have petitioned the Local Board to take steps for entering into negotiations with the West Kent Main Sewerage Board as soon as possible.

Unhealthy Foundations in Southwark.—At a meeting of the Vestry of St. George the Martyr, Southwark, on the 25th ult., it was reported that in a new street in course of formation the contractor was digging deep down and taking away the gravel, filling up the hole with any kind of rubbish. The surveyor was directed to make a report upon the matter to the Roads Committee, and the subject was referred for the Committee to report upon to the Vestry.

An Iron Church destroyed by Snow.—The iron church built by the congregation of St. Luke's, Cheltenham, early in 1872, has been completely wrecked. A very heavy fall of snow, resting with unusual weight, on account of its moisture, upon the large roof of the building, forced out the sides; the whole building consequently gave way, and has become a complete wreck.

Liverpool and the Artisans' Dwellings Act.—It was decided, at a meeting of the Liverpool Town Council on the 2nd inst., to petition the Local Government Board for the granting of a provisional order under the Artisans' Dwellings Act for carrying into effect a scheme for improving a low part of the town, known as Nash-grove.

The Literary Fund.—The Earl of Derby will fill the office of President of the Literary Fund, vacant by the death of Earl Stanhope; and, in accordance with what has been the custom with a new president, will take the chair at the ensuing anniversary dinner, fixed on this occasion for the 3rd of May.

Ystradyfodwg Burial Board.—It having been decided to lay out a cemetery at Ferndale in the Rhonda Valley, near Pontypridd, Glamorganshire, designs for two chapels and a sexton's lodge were invited in competition, and one submitted by Mr. Henry Lovegrove, of Budge-row, London, was selected for execution. Tenders will be obtained forthwith.

The Slade Professorship of Fine Art at Oxford.—This professorship is vacant by the expiration of Mr. Ruskin's three years of office. Mr. Ruskin, who was appointed the first professor in 1869, and re-elected in 1872, is again eligible for re-election, and will, it is supposed, meet with no opposition.

Dismissal of a Government Clerk of Works.—It is announced from Plymouth that an acting clerk of works at Keyham-yard has been dismissed the service. through his own admission of having employed men privately while they were at the same time being paid from the public funds.

Society of Arts.—The Council of the Society of Arts have just appointed Mr. H. Trueman Wood as Assistant Secretary, under Mr. P. Le Neve Foster, secretary of the Society. Mr. Wood has been for the last three years the editor of the Society's *Journal*.

The Nottingham Mechanics' Institute.—The committee of the Nottingham Mechanics' Institute has approved of plans submitted by Mr. R. C. Sutton, architect, for some extensive additions proposed to be made to the building, including a two-story building fronting Milton-street.

Death of M. Thome de Gamond.—M. Thomé de Gamond, one of the original proposers of the Channel Tunnel, has just died, at the very time the International Commission has pronounced in favour of the scheme.

Burlington Fine Arts Club.—A collection of ancient glass and a series of Nielli have been arranged here for exhibition.

TENDERS

For receiving wards, &c., at the Industrial Schools, Plashet, Essex. Messrs. Wilson, Son, & Aldwinckle, architects. Quantities supplied:—

Taylor	£1,434 0 0
Menning & Dowdney	1,350 0 0
Cordozo	1,260 0 0
Hunt	1,255 0 0
Webb	1,249 0 0
Palmer (accepted)	1,185 0 0
Hearle	1,175 0 0
Cohen	1,080 0 0

For new boilers at the Industrial Schools, Plashet. Messrs. Wilson, Son, & Aldwinckle, architects:—

		Allow for Old Boilers.
Smith & Co.	£824	—
Wardell	720	£15
Ware	589	20
Fraser, Bros. (accepted)	560	20

For building warehouse in the Kingsland-road, for Mr. Job Darnell. Mr. W. B. Clarke, architect. Quantities by Messrs. King & Tomlinson:—

Porter	£3,397 0 0
Lewis	2,970 0 0
Pritchard	2,831 0 0
Lathey, Brothers	2,830 0 0
Channing	2,773 0 0
Staines & Son	2,682 0 0
Bayes & Co. (accepted)	2,645 0 0
Goodman	2,635 0 0
Hunt	2,506 0 0

For villa residence at Old Coats, near Worksop, Notts, for Mr. G. Simmons. Mr. G. A. Wild, architect. Quantities supplied:—

Carr	£1,300 0 0
White	1,100 0 0
Fishburn	1,064 12 4
Wright	1,062 15 8
Howard (accepted)	1,053 16 0
Wilson	1,045 0 0

For alterations at the Canonbury Tavern, St. Mary's-road, Islington, for Mr. Longhurst. Mr. Edward Brown, architect:—

Stamp & Bowtle	£521 10 0
Marr (accepted)	451 10 0

For vicarage at Seaford, Sussex. Mr. E. Christian, architect:—

Vidler	£2,245 10 0
Morling	2,245 0 4
Berry	2,232 4 0

For forming granite curbing, and making the Hole Farm-road, Hastings. Mr. H. Carpenter, surveyor:—

Howell & Son	£1,246 0 0
Hughes	1,125 0 0
Vidler	1,098 0 0

For the erection of a new covered skating-rink. Messrs. Bidlake & Fleeming, architects:—

Lovatt	£1,800 0 0

For new shop-front and fittings for Mr. Blunden, Clapham. Messrs. J. & A. E. Bull, architects:—

Wagner (accepted)	£229 0 0

For erection of villa, Tottenham-lane, Crouch End, Hornsey. Mr. J. W. Reed, architect:—

Crabb	£2,638 0 0
Morter	2,495 0 0
Cowley	2,400 0 0
Ramage	2,368 0 0
Arrowsmith & Drinkwater	2,300 0 0
Bayes, Bros., & Allen	2,300 0 0
Southcott	2,298 0 0
Hunt	2,193 0 0
Hawkes	2,070 0 0

For alterations and repairs to Castle Villa, Dalston-rise, E. Mr. J. W. Reed, architect:—

Ramage	£930 0 0
Bayes, Bros., & Allen	898 0 0
Smith	779 0 0
Norman (accepted)	745 0 0
Aldridge	630 0 0

For erecting stabling at No. 6 Wharf, Amberley-road, for Mr. R. A. Nash. Mr. E. Vigers, jun., architect. Quantities supplied by Messrs. Herring & Shayler:—

Temple & Foster	£946 0 0
Crockett	872 0 0
Butland & Thomas	863 0 0
Mark	856 0 0
Stimpson & Co.	820 0 0

For sundry alterations and additions at Nos. 65 and 67, Ludgate-hill, for Messrs. Samuel Brothers. Messrs. N. S. Joseph & Pearson, architects. Quantities not supplied:—

Pritchard & Son	£5,886 0 0
Newman & Mann	5,590 0 0
Browne & Robinson	5,304 0 0

For rebuilding front and back portion of No. 61, Cheapside, for Mr. Brotherton. Mr. John Wimble, architect. Quantities supplied by Mr. William Wimble:—

Greenwood	£9,714 0 0
Downs	9,612 0 0
Dove, Brothers	9,455 0 0
Scrivener & White	9,438 0 0
Lawrence	9,137 0 0
Croaker	8,896 0 0
Killby	8,831 0 0
Ashby & Horner	8,791 0 0
Newman & Mann	8,693 0 0
Brass	8,381 0 0

For reinstatements to East End Chapel, Finchley. Messrs. Chas. Searle & Sons, architects. Quantities supplied by Mr. Chas. Henry Searle :—

Williams & Son	£1,790	0	0
Newman & Mann	1,760	0	0
Dove, Brothers	1,675	0	0
Roberts	1,334	0	0

For excavating and foundations and vaults, corner of Southampton-street and Henrietta-street, Covent-garden, for Mr. H. G. Clarke. Mr. John Wimble, architect. Quantities supplied :—

Hill, Higgs, & Hill	£3,145	0	0
Downs	2,265	0	0
Fish	2,950	0	0
Brass	2,743	0	0
Lawrence	2,738	0	0
Killby	2,729	0	0
Newman & Mann	2,710	0	0
Scrivener & White	2,425	0	0

For alterations at Devonshire-terrace, Paddington. Messrs. N. S. Joseph & Pearson, architects. Quantities supplied by Mr. Green :—

Hearn	£1,998	0	0
Brass	1,991	0	0
Lidstone	1,970	0	0
Adamson	1,955	0	0
Scrivener & White	1,955	0	0
Newman & Mann	1,926	0	0
Langmead & Way	1,875	0	0
Griffiths	1,859	0	0
Sabey & Sons	1,716	0	0

TO CORRESPONDENTS.

The Venus of Milo; Arundel Castle, &c., unavoidably postponed.

Builder (we cannot take the responsibility of advising in what place in South Wales or South of England cottages could be profitably built).—R. W. W. (can write for himself).—J. S. T. (shall be remembered. We are always open to such illustrations when they offer).—Dry Rot (the subject was treated of in a recent number. See also our earlier volumes).—J. K. C.—R. L. R.—E. S.—T. O.—F. P.—R. M.—C. L.—R. K.—L. B.—J. D.—K. & Co.—Bricklayer.—W. W.—Inquirer.—N. W.—C. J. S.—W. C. T.—O. B. B.—F. C.—J. S.—W. & M.—G. & M.—J. A. H.

We are compelled to decline pointing out books and giving addresses.

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W. E. GREENWELL, Vestry Clerk.
Court House, St. Marylebone, February, 1876.

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